STATUS AND DISTRIBUTION OF COLONIAL NESTING WATERBIRDS IN SOUTHERN IDAHO, 1993

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ABSTRACT

We review the status of eighteen species of colonially nesting waterbirds in southern Idaho, and present the results of a survey conducted in spring and summer of 1993. The species included are the Eared, Western, and Clark's grebes; the American White Pelican; Double-crested Cormorant; Great Blue Heron; Black-crowned Night-heron; Snowy Egret; Cattle Egret; Great Egret; White-faced Ibis; California, Ring-billed, and Franklin's Gulls; and the Caspian, Common, Forster's, and Black Terns.

We found that the heron, egret, and ibis populations are stable or increasing. The confirmation of their expected breeding presence at the Duck Valley Indian Reservation was especially rewarding. American White Pelicans continue to increase in breeding numbers, with two successful colonies established in eastern Idaho. All the gull species in southern Idaho also seem to be stable or increasing. There is some concern over possible effects of poor water quality and water level fluctuations on nesting efforts of Western and Clark's Grebes, at least on the Snake River Plain. Caspian and Black Terns appear to be holding steady, but there is grave concern over both Forster's and Common Terns in Idaho. Their reproductive attempts this year were apparently failures, possibly due to winter fish kills in their breeding areas. We feel that an effort to monitor these two species should continue at least through 1994.

We provide five recommendations for conservation of these species: (1) increased protection of breeding birds; (2) consistent, yearly censusing of birds on waterfowl refuges and management areas; (3) a program of collecting basic natural history information for these birds; (4) consideration of the needs colonially nesting waterbirds when making water management decisions; and (5) regular population monitoring on a statewide basis.

INTRODUCTION

A colonial waterbird is defined as an avian species that nests together in noticeable concentrations and which has aquatic habitat as an essential part of its daily environment (Peterson 1977). Currently eighteen species corresponding to this definition nest in Idaho. The status of fourteen of these species was reviewed by Peterson (1977), and in 1984 seventeen of these species were surveyed throughout the state (Trost 1985; for the current survey Western and Clark's grebes were counted as two species as opposed to a single species in 1984).

None of the surveyed species is listed as Federally endangered or threatened; however, four species are listed either as federal Category 2 species, as Bureau of Land Management Sensitive Species, or State of Idaho Species of Special Concern. These four are also ranked by the Idaho Conservation Data Center; we provide a summary of their legal status along with the survey results.

During the spring and summer of 1993, we surveyed southern Idaho to determine the status of eighteen species of colonially nesting waterbirds. Objectives of the survey were: (1) to locate as many colonies of each species as possible; (2) to visit as many colonies as possible and make population estimates for each; (3) to gain some idea of the reproductive success of as many colonies as possible; and (4) to ascertain any disturbances or other threats to the colonies. In addition, we have provided a brief species account for each species to make the survey results useful to a wider audience.

Both Peterson (1977) and Trost (1985) recommended that these surveys be continued on a regular basis in Idaho. We reiterate this recommendation, and provide suggestions for future work (see under "General Recommendations").

METHODS

So that the survey results can be compared with previous results, our methods were largely the same as for the 1984 survey (see Trost 1985 and discussion below). Survey results are based on: (1) returns of a questionnaire mailed to refuge managers and other personnel; (2) an aerial survey for White-faced Ibis and island nesting gull species; and (3) ground surveys at individual nesting locations. Ground surveys were either actual counts of nests, counts of birds on open water, or flight counts. We used the same methods as for the previous survey because they allow good results with a minimum number of personnel and because their use allows direct comparison of results between the 1993 and 1984 surveys.

This survey covered southern Idaho from the Snake River Plain southward. The northernmost survey locations were Henry's Lake in the east and Snake River islands near Weiser in the west. The two southernmost locations were the Duck Valley Indian Reservation in the west and Bear Lake in the east. Specific survey locations are given in the tables accompanying each species report.

Questionnaires
The questionnaire used is shown in Appendix "A", which also gives a list of respondents. Further comments on the use of questionnaires are included in the section "General Recommendations", below.

Aerial Surveys
Martin and Lester (1990) used aerial surveys supplemented with ground observations to census wading and seabird colonies in Louisiana. They note that some species can be accurately counted from the air, but that cryptic species "present significant problems", and that these problems are further complicated by differences in nest substrate and placement. In a Wyoming survey of colonially nesting waterbirds, Findholt (1985) found that censusing colonies from the air resulted in "considerable error compared to total ground counts"; a follow-up survey in 1990 (Ritter and Cerovski 1990) used primarily ground surveys.

We felt that greatly increased use of aerial surveys would make the results incompatible with those of the 1984 survey. In addition, primary use of ground surveys makes the results at least somewhat comparable to those obtained in Wyoming by Findholt (1985) and by Ritter and Cerovski (1990).

We did attempt to use an aerial survey to count ibis, particularly at Bear Lake, where ground access was extremely restricted at the time we made flight counts. The flight covered the southeast part of the state, originating at Pocatello and flying southeast to Bear Lake, then north to Blackfoot Reservoir

and Gray's Lake, north along the Henry's Fork to Island Park Reservoir, then southwest to Mud And Market Lakes, and back to Pocatello. This survey, done while young ibis were still on the nest, showed that it was extremely difficult to count this species from the air, since individuals were surprisingly cryptic. An aerial survey would thus very likely have given quite different results from the 1984 method of flight counts. However, aerial surveys for this species might have better success earlier in the season, when at least one adult is always on the nest. We recommend that any aerial surveys for this species be done in late May or early June.

During the same aerial survey, we overflew ibis nesting areas at Mud Lake, gull colonies at Blackfoot Reservoir, Gray's Lake, and American Falls Reservoir, and potential Great Blue Heron nest sites along the Henry's Fork. We took photographs of the gull colonies to use in estimating nest numbers. In general, however, the survey confirmed the difficulty in estimating numbers of nesting birds from the air in a way that allows useful comparison to results from previous surveys. In fact, it was often impossible to find a colony from the air, even though we knew its general location.

Ground Surveys

We counted Western and Clark's grebes on the open water, with the assumption that unless chicks were present, one adult was on the nest and the other on the water, so that the number of individuals seen equalled the number of nests. For the late nesting grebes on Minidoka NWR and the Duck Valley Indian Reservation, we counted birds on the nest, which gave the best measure of actual numbers of Western and Clark's grebes.

We made repeated flight rate counts at different colonies to allow for effects of weather, reproductive stage, and time of day. Actual counts were made as described in Erwin (1981). Flight rates for different species were taken as the overall number of birds seen in a given time period, except for some of the counts of White-faced Ibis at Oxford Slough. These counts were taken from a hill approximately 1.25 miles (2km) west of the colony, using a 15X or 20X spotting scope focused on an old school bus in the mud to the southeast of the colony. These counts allow direct comparison to counts made with the same method during the 1984 survey. However, we also took overall flight counts at this colony, discovering that an observer closer to the colony in the evening saw a much larger number of birds coming into the colony from the south than an observer counting simultaneously from the hill to the west, who mostly observed birds going and coming to the north.

Direct counts of nests were made either from shore, by wading, or from a canoe. At all times, we took care not to cause undue disturbance to nestlings or eggs. For example, we did not

attempt to census the American White Pelicans at Blackfoot Reservoir or Minidoka NWR until mid-August, when the chicks were well grown. Similarly, we censused gulls by obtaining nest densities after the young had fledged or were mobile.

GENERAL RECOMMENDATIONS

We have five general recommendations for the preservation and future study of colonially nesting waterbirds in Idaho:

(1) Breeding areas should be protected.

Colonially nesting birds are extremely vulnerable to human disturbance, since any single disturbance will affect a large number of nests. We recommend that their breeding areas be posted against intrusion, and that the areas be patrolled and the posting enforced. In the past, nesting colonies of American White Pelicans in Idaho have been destroyed, apparently by anglers who thought that these birds reduced the numbers of game fish. An information program to inform the public that colonial waterbirds do not threaten local sport fisheries could be successful in reducing disturbance by reducing this motivation to enter the nesting areas.

(2) There should be a program of consistent, yearly observations of colonially nesting waterbirds at waterfowl refuge and management areas.

On the Snake River Plain, colonially nesting waterbirds are largely found on or near waterfowl refuge and management areas. Information regarding the distribution and abundance of these birds could be greatly expanded if personnel in these areas regularly recorded sightings of them. We propose that a standard form be used, and observations be broken down into three categories: (1) species actually known to nest and the number of nests observed; (2) species regularly seen in the area and any estimate of the numbers seen; and (3) any species observed incidentally. A number of these birds, including the American White Pelican, the White-faced Ibis, the Cattle Egret, and the Great Egret, are either expanding in numbers or changing their breeding locations, and even incidental observations would be extremely helpful in tracking these changes. Consequently, a considerable amount of useful information could be obtained for a modest effort. Standardized forms could be sent to a central coordinator (such as Chuck Harris, Idaho Conservation Data Center) for yearly evaluation, and the collected information used to inform any future surveys or other studies.

(3) Basic natural history information should be collected for these species, and appropriate research done to obtain necessary information.

In collecting background information for this survey, we noted that much of the basic natural history information needed to make management decisions for colonially nesting waterbirds is either completely lacking or not readily available. Breeding populations of these birds must be present on the Snake River Plain due to an appropriate conjunction of nesting and feeding areas, but information as basic as the water depth preferred by aquatic foragers is not available. Some species, such as the White-faced Ibis and the Ring-billed Gull, may be increasing in numbers by taking advantage of feeding opportunities provided by irrigated agriculture, but there is little or no information on how changing agricultural patterns affect this group of birds as a whole. We recommend that basic natural history information be gathered, first by doing an in-depth literature survey, and subsequently by doing appropriate field research as indicated by the survey results and the results of ongoing monitoring as proposed above.

(4) Colonially nesting waterbirds must be considered when water management decisions are made.

Since colonially nesting waterbirds on the Snake River Plain are often found near waterfowl refuge and management areas, they share problems of refuge water supply with waterfowl and other species on these areas. For example, grebes apparently no longer nest at Deer Flat Wildlife Refuge due to fluctuations in water level, which are caused by the Refuge's low priority for water allocation. In addition, the water flowing into these management areas may contain high levels of agricultural waste, with potentially harmful effects on reproductive success. While realizing the practical difficulties of water allocation in management areas, we recommend that the needs of colonially nesting waterbirds be considered when water management decisions are made, particularly for species with low breeding numbers such as the Great Egret. To effectively make these decisions, a better base of natural history information, as noted above, will be necessary.

(5) Colonially nesting waterbird populations should be regularly monitored on a statewide basis.

These species are a barometer of environmental health, since they feed at a high trophic level and many winter in the neotropics (defined as the U.S./Mexican border southward), where pesticide contamination is still a very real problem. We therefore recommend a program to regularly monitor all these species. The minimum interval between surveys should be five years, but for species showing precipitous declines, as noted in this report for

Forster's Terns, annual evaluations are called for.

EARED GREBE
Podiceps nigricollis
STATUS: No current listing

Distribution and Movements
Eared grebes breed throughout the northwestern states east of the Cascade and Sierra Nevada ranges, and may breed west of these mountains when conditions are favorable. In Idaho, they breed in favorable locations throughout at least the southern portion of the state.

These grebes winter along the Pacific coast south into Mexico, moving southward from mid-October to mid-November. Spring migration peaks in May at the Bear River Refuge in Utah, and presumably the timing is similar in southern Idaho. Eared grebes migrate at night, and are gregarious on their staging points, where they molt and gain body fat for migration. These staging points include Great Salt Lake in Utah, Mono Lake in California, and Lake Abert in Oregon (Conte and Conte 1988), where brine shrimp provide an abundant food source. Concentration of individuals in these areas means that high mortality can occur under unfavorable conditions; most annual mortality may occur during migration (Jehl 1993a).

Habitat and Nesting
Eared grebes nest primarily in the shallow (1-3 ft. deep), reedy portions of medium to large sized lakes, and less frequently on smaller waters. They often nest in a tight colony, with nests 6-9 feet (2-3m) apart. The nest is a cup of reeds and decayed algae, roughly 8-12 inches (20-30cm) across. The nest is at the water surface, and the egg depression may actually be below water level. Clutch size ranges from 1-6, with 3-5 eggs the most common.

Food taken includes aquatic and land insects and their larvae, along with some small fish, crustaceans, molluscs, and amphibians. At Mono Lake in California, eared grebes generally foraged in water greater than six feet (2m) deep (Winkler and Cooper 1985).

Survey Results
We found well over 100 more Eared Grebe nests in this survey than in 1984, but this was at least largely due to more intensive surveying for this elusive species. Eared Grebes nest in emergent vegetation and are rarely visible except to observers in canoes or similar watercraft.

We found a major colony at Mud Lake WMA, but seven visits were required to establish the colony's size and location. Similarly, after five visits to Market Lake WMA we decided that there was almost no reproduction among these grebes, despite their presence in considerable numbers. Our best find was a large colony at the Duck Valley Indian Reservation in southwest Idaho. This colony

is at high elevation (5-6000ft), and is relatively undisturbed, although there is disturbance at nearby Mountain View Reservoir on the Reservation.

Because of reports of die-offs of large numbers of migrant grebes in Utah and of spring die-offs in California's Salton Sea (Jehl 1993a), we put extra effort into trying to pin down nest locations and reproductive output. We feel that in general eared grebes are healthy and reproducing well in Idaho. Their dietary reliance on invertebrates probably assures them of an ample supply of food in most marsh environments, as opposed to a reliance on fish which are subject to winter kills.

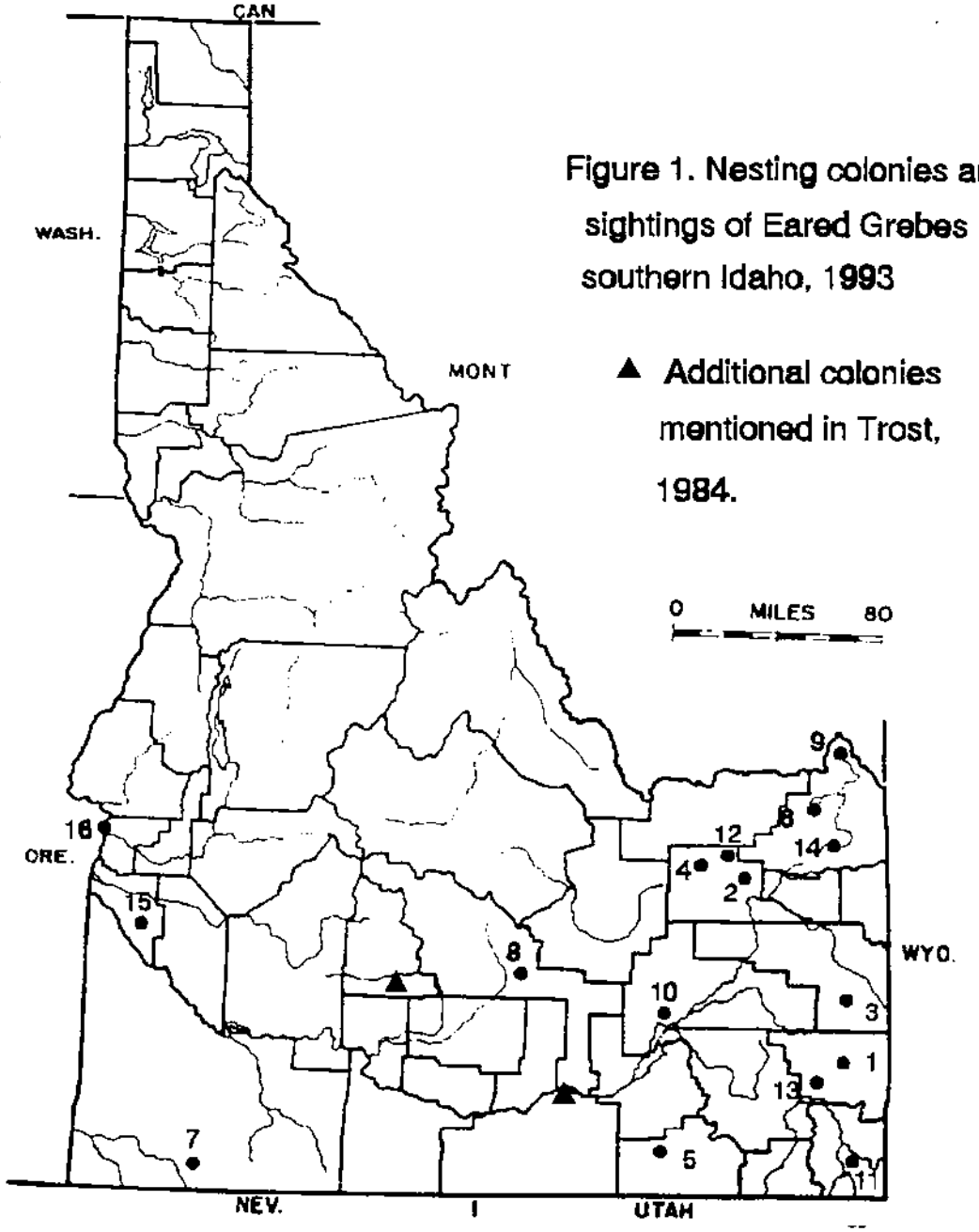

Figure 1. Nesting colonies and sightings of Eared Grebes in southern Idaho, 1993

▲ Additional colonies mentioned in Trost, 1984.

Table 1. Nesting Locations and Sightings of Eared Grebes in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nest	# Birds	Date	Comments	Source
1	Blackfoot Res.	42.56-111.3 (T6S, R41E,S11)	5-10	3	7-4	Off Long Island in open water.	This Study
1	" "	" S12	-	10	7-4	In Craig Lake, S. end.	" "
1	" "	" "	5-7	15	8-4	" "	" "
2	Market Lake WMA	43.47-112.10 (T5N, R37E,S6)	-	5	6-7	Main marsh ditches.	" "
2	" " "	" " "	-	22	7-3	In pond to east of marsh.	" "
2	" " "	" " "	-	27	7-9	" " ", no chicks seen.	" "
2	" " "	" " "	-	44	7-21	" " ", "	" "
2	" " "	" " "	1-2	4	8-4	" " ", 2 fledged chicks.	" "
3	Grays Lake NWR	43.01-111.27 (T3S, R43E,S4)	5-10	10	6-26	North end, open water.	" "
3	" " "	" " "	25-30	52	6-26	S. end, open water.	" "
4	Mud Lake WMA	43.53-112-25 (T7N, R34E,S35)	-	2	6-12	N. side road, open water.	" "
4	" " "	" " S34	-	27	6-14	W. end, emergent veg.	" "
4	" " "	" " "	-	63	6-15	Off s. dike road.	" "
4	" " "	" " S35	-	4	6-25	N. side, 2 chicks w/ parents.	B. Hammond
4	" " "	" " S34	60-80	142	7-9	27 chicks seen, (13 w/ 1, 7 w/ 2).	This Study
4	" " "	" " "	-	23	7-21	11 grebes with 1 chick each.	" "
4	" " "	" " "	-	18	8-4	6 chicks seen (4 w/ 1, 1 w/ 2).	" "
5	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	-	3	6-5	S. Twin Lakes, open water.	" "
5	" "	" "	-	8	6-5	On Downey sewage ponds.	" "
5	" "	" "	5-10	6	6-23	In canals of slough, hard to count.	" "
6	Island Park Reservoir	44.25-111.35 (T13N, R42E,S-)	40-50	80+	7-17	West end, 40 nests counted, (25 w/0, 14 w/1, 1 w/2 eggs).	" "
6	" " "	" "	-	60	8-4	One chick seen, open water.	" "
6	" " "	" "	-	46	8-15	Two chicks seen, open water.	" "
7	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S-)	85-105	15	6-29	Nests in marsh to s.w. of res. (5 nests w/1, 2 w/2, 1 w/3, 1 w/4 eggs).	" "
8	Carey Marsh WMA	43.20-113.55 (T1S,R21E,S14)	-	2	6-12	I see 2 adults in open water.	" "

Table 1, cont. Nesting Locations and Sightings of Eared Grebes in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
9	Henry's Lake	44.45-111.20 (T44N,R43E,S31)	-	9	7-17	In pairs of adults on open water.	This Study
10	American Falls Res.	42.59-112.36 (T5S,R33E,S36)	-	2	7-2	A pair in open, at Snake River entrance.	" "
10	" " "	" "	-	13	7-19	Adults in open water.	" "
11	Bear Lake NWR	42.11-111.19 (T14S,R44E,S34)	-	3	7-10	Adults in Salt Meadow Unit.	" "
12	Camas NWR	43.54-112-16 (T7N,R36E,S18)	10-20	40+	7-5	Two-way pond (1 nest w/2, 1 w/3 eggs).	" "
12	" "	" " S17	10-15	12	7-8	Near the Ibis colony on the Center Marsh, (1 w/ 1, 1 w/2, 3 w/3, 4 w/4, & 1 w/ 5 eggs).	" "
12	" "	" " "	-	57+	7-21	In three locatiions, chicks: (4, 1, 1, & 3 chicks/adult)	" "
12	" "	" " "	-	48+	8-4	On two ponds, with chicks on backs. (3, 2, 2, 1, 1, 1, 1 chicks/adult)	" "
13	Chester Hill Reservoir	42.43-111.45 (T8S,R42E,S25)	-	35+	7-4	Res. just n.w. of Hooper Springs.	" "
13	" " "	" "	15-25	46+	7-10	Eight birds sitting on eggs.	" "
13	" " "	" "	-	10	8-3	Two chicks w/ 2 adults.	" "
14	Mesa Falls Marsh	44.10-111.10 (T10N,R44E,S18)	-	1	7-17	One adult seen in open water.	" "
15	Deer Flat NWR, Lake Lowell	43.30-116.45 (T3N,R3W,S33)	-	-	5-26	Formerly nested on Lake Lowell portion of this refuge, not now.	W. Stanley
16	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	-	-	5-26	Eared grebes present on this sector of the refuge, but not known to nest.	" "
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	-	6-29	Present, not known to breed.	J. Reynolds

Total Range in Eared Grebe Nests = 266-364

WESTERN GREBE and **CLARK'S GREBE**
Aechmophorus occidentalis and *Aechmophorus clarkii*
STATUS: No current listing

Distribution and Movements
Western and Clark's Grebes breed in all the northwestern states, primarily east of the Cascade and Sierra Nevada ranges. They breed in favorable habitat throughout Idaho, with Clark's Grebes tending to breed further south than the Western Grebe.

Both grebes winter along the western coast of the United States south into the Gulf of Mexico and possibly in the interior of that country. In marine habitats, these grebes are generally found in sheltered bays and inlets. Fall migration in Utah usually peaks in October, although it may continue from late September to early November; spring migration usually peaks in April or May. Migration times are presumably similar in southern Idaho. These grebes stage in small areas during migration; over 1,000 may be found at one location.

Habitat and Nesting
Western and Clark's Grebes require two types of habitat for breeding: open water for displaying, feeding, and social flocking; and large areas of tall emergent aquatic plants such as tule (*Scirpus*) or cattail (*Typha*) for nesting. Thus nests are generally found in large areas of open water with a border of tules or rushes.

These two species of grebes may nest sympatrically, but seldom interbreed. A difference in their advertising calls reproductively separates the two species (Neuchterlein 1981), and Clark's grebes tend to forage further from shore in deeper water, possibly reducing niche overlap (Neuchterlein 1981, Ratti 1985).

Food consists mostly of fish (more so than with other grebes) as well as some insects. These grebes catch fish by diving and pursuing them underwater, using their lobed feet for propulsion.

Nests are a mound as much as 6 inches (15cm) above water, with a shallow depression for the eggs, and made largely of dead, dry vegetation with some green or decayed material added. Nests are either built up from the lake bottom or anchored to emergent vegetation; anchored nests may be in water up to ten feet (3m) deep. Clutch sizes range from 2-7 eggs, with 3-4 eggs the most common. Egg dates in Utah and California are as early as May 20; replacement clutches are common.

Grebes are susceptible to changes in water level during their nesting period. At Blackfoot Reservoir in 1980, rising water twice flooded nesting Western Grebes, which renested subsequent to the first flooding (Trost 1985). These grebes may be able to nest successfully when falling water levels leave the nests on dry land; they have successfully nested on dry land close to

water where the nesting area was flooded prior to nest-building (Nero et al. 1958, cited Palmer 1962).

Survey Results

The recent split of these two species from the single species "Western grebe" causes us to examine their relative abundances and locations. Some populations are almost entirely Western Grebes (e.g. Cascade Reservoir and Island Park Reservoir), while others are almost even in the numbers of the two species. Because the two are not easy to tell apart, and because the Clark's Grebe tends to forage in deeper water, there is a tendency to underestimate the numbers of Clark's Grebes. The large nesting colony at Bonanza Bar in Minidoka NWR is an example. On July 5th and 22nd we estimated that Clark's Grebes composed 3-6% of the grebes present. However, when the grebes finally formed a large colony by August 20th, we realized that almost 40% of the nesting grebes were Clark's.

These grebes are extremely reliant on consistent water levels and good water quality. They no longer nest on Lake Lowell due to the fluctuating water levels and the nutrient load in that refuge. Both these grebes rely on fish which are subject to population fluctuations. The winter of 1992-1993 was characterized by heavy snow fall following seven years of drought. Many shallow water areas lost most of their fish due to low water levels and long periods of snow on the ice. Mud Lake WMA, Camas NWR, and Market Lake WMA all had fish kills, probably resulting in lower grebe production this summer. At Island Park Reservoir Idaho Fish and Game Department used low water levels last fall as an opportunity to poison the large supply of nongame fish. Subsequently, the large Western Grebe colony that had been located on the west end of the reservoir in 1992, containing over 100 nests (pers. obs.) completely failed this summer.

These grebes are flexible in the timing of their nesting, and may nest in large colonies or isolated pairs. The grebes at the large colony at Bonanza Bar in the Minidoka NWR did not begin nesting until the end of August, when the water level had dropped sufficiently to expose emergent vegetation. This reservoir is remarkable because of the constancy of its water levels, and has a normal draw-down of only three to four feet. The grebes nested quite late in the season, when conditions were appropriate for their floating nests. It is uncertain, however, whether they had time at this late date to raise their young before winter freeze-up.

Despite local reproductive failures, we feel that these species are reproducing well when conditions are right. The dynamic nature of their reproductive behavior allows them to respond to water levels or varying food supplies by nesting at almost any time during the summer, thus maximizing their reproductive success, although they may make two or three attempts at nesting before they are successful.

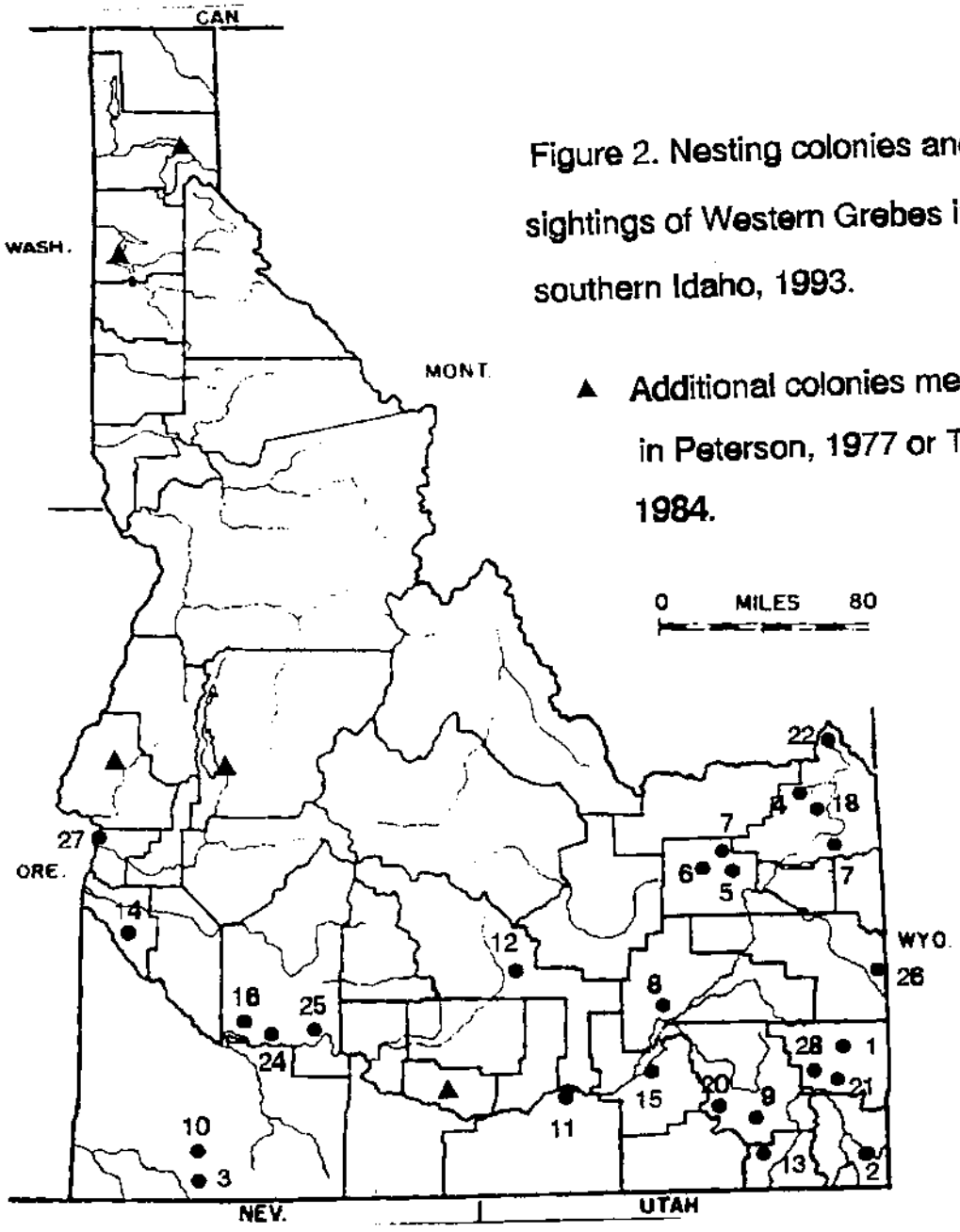

Figure 2. Nesting colonies and sightings of Western Grebes in southern Idaho, 1993.

▲ Additional colonies mentioned in Peterson, 1977 or Trost, 1984.

Table 2. Nesting Locations and Sightings of Western Grebes in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Blackfoot Reservoir	42.56-111.37 (T6S,R41E,S11)	-	17	7-4	Much habitat, few grebes.	This Study
1	" "	" "	25-30	100	6-9	Several nests suspected.	L. Hlavaty
2	Bear Lake NWR	42.09-111.20 (T15S,R44E,S11)	-	1	6-19	One grebe near Ibis colony.	This Study
2	" " "	" "	-	48	7-10	Mud Lake area by canoe.	" "
2	" " "	" "	25-30	60	7-8	Est. total present, 20 young.	R. Sjostrom
3	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S11)	-	120	5-28	Mountain View Res., this place is too disturbed for nesting.	This Study
3	" " "	" "	-	20	6-29	No nests found.	" "
4	Island Park Res.	44.25-111.36 (T13N,R42E,S36)	-	5	6-29	Seen from south shore.	" "
4	" " "	" "	-	8	7-17	Not nesting at old site.	" "
4	" " "	" "	1	4	8-4	Empty nest in reeds, west end.	" "
5	Market Lake WMA	43.47-112.10 (T5N,R37E, S6)	-	5	6-7	In main canal by road.	" "
5	" " "	" "	-	4	6-24	In main canal by road, nesting?	" "
5	" " "	" "	-	4	8-4	In main ditch, no chicks seen.	" "
6	Mud Lake WMA	43.53-112.25 (T7N,R34E,S35)	-	18	6-12	Open water on n.e.side.	" "
6	" " "	" "	-	15	6-14	South dike, open water area.	" "
6	" " "	" "	-	8	6-15	South dike again, 2 pairs.	" "
6	" " "	" "	-	1	6-25	From tower on n. side.	" "
6	" " "	" "	-	40	7-9	Along north shore, no chicks.	" "
6	" " "	" "	-	1	7-21	South dike, shallow water.	" "
6	" " "	" "	15-20	19	8-4	North dike, no chicks seen.	" "
7	Camas NWR	43.54-112.16 (T7N,R36E,S17)	-	10	7-5	Six on Sandhole Lake, 4 at n.e. corner of Ray's Lake.	" "
7	" "	" "	-	2	7-8	In Camas Creek, near Ray's Lake.	" "
7	" "	" "	-	-	6-16	The drought has killed the fish and the formerly nesting grebes are hard to find.	G. Deutcher
8	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	7	6-8	Open water near McTucker Spr.	This Study
8	" " "	" "	-	15	6-17	Open water near Danielson Cr. Bay.	" "

Table 2, cont. Nesting Locations and Sightings of Western Grebes in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
8	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	75-125	90	7-1	Entrance of the Snake R., 4 w/ chicks on backs.	This Study
8	" " "	" "	-	11	7-11	10 by Crystal Spr. & 1 w/ chick at Danielson Cr. Bay.	" "
8	" " "	" "	-	71	7-19	Between Snake R. entrance and Danielson Cr., 8 w/ chicks.	" "
8	" " "	" "	-	10	7-27	Along n. shore, 4 w/ chicks.	" "
8	" " "	" "	-	121	8-12	Many young in open water, w/o adults.	" "
9	Downey Slough	42.25-112.07 (T12S,R37E, S31)	-	3	6-5	In large pond to w. of road.	" "
10	Grassmere Res.	42.25-115.45 (T11S,R4E,S30)	-	4	5-28	No suitable nesting habitat.	" "
11	Minidoka NWR	42.50-113.20 (T9S,R26E, S31)	-	36	6-22	Massacre Rocks area, nesting? (2 of 6 were Clark's, = 33%)	" "
11	" "	" " S5	-	6	6-24	In open water near Gull Is.	" "
11	" "	" "	-	70	7-5	All along the s. shore, Coldwater Cr. to Gull Is.	" "
11	" "	" " S31	-	25	7-22	Near Massacre R., 1 w/ chick, 12 nests near Bonanza Bar.	" "
11	" "	" " S26	60-100	101	8-20	Near Bonanza Bar, huge mixed colony w/ 37% Clark's, 2 Westerns w/ chicks.	" "
12	Mormon Reservoir	43.15-114.5 (T2S,R14E,S25)	-	20	6-12	All "loafing" in open water near dam.	" "
13	Twin Lakes	42.20-112.00 (T14S,R39E,S24)	-	33	6-5	On both lakes, non breeders?	" "
14	Deer Flat NWR, Lake Lowell	43.30-116.45 (T3N,R3W,S33)	-	18	6-3	Lake Lowell, most in s. portion.	" "
14	" " "	" "	-	200	5-26	Former nester, water level drops too much.	W. Stanley
15	American Falls Res.	42.47-112.45 (T7S,R31E,S22)	30-40	61	7-1	Rainbow Beach & Seagull Bay areas, many with chicks on back.	This Study
15	" " "	" S29	7-10	12	7-25	Near silo at the dam, 7 w/ chicks. Several chicks half grown.	" "

Table 2, cont. Nesting Locations and Sightings of Western Grebes in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
16	C. J. Strike Res.	42.50-115.45 (T6S,R6E,S5)	-	2	6-9	On state park ponds.	This Study
16	" " "	" "	-	3	6-9	On Snake R. west of bridge.	" "
17	Mesa Marsh	44.10-111.10 (T10N,R44E,S18)	-	3	6-26	In open pond.	" "
17	" "	" "	1	1	7-17	One of the others on nest?	" "
18	Harriman State Park	44.20-111.30 (T13N,R34E,S27)	-	3	6-29	Silver Lake, west end.	" "
18	" " "	" "	2	2	7-16	Silver Lake, others on nests?	" "
19	Robert's Borrow Pit	43.40-112.15 (T5N,R37E,S16)	-	2	7-3	No nesting habitat.	" "
20	Hawkin's Reservoir	42.35-112.25 (T11S,R36E,S35)	-	2	6-7	Resting on the reservoir.	" "
21	Alexander Res.	42.40-111.45 (T9S,R41E,S11)	-	19	7-4	Along south shore, nesting?	" "
22	Henry's Lake	44.45-111.20 (T16N,R43E,S31)	-	8	7-17	Most in n.e. corner, nesting?	" "
23	Chester Hill Res.	42.43-111.45 (T8S,R41E,S25)	-	2	8-3	"Loafing" on the lake, no chicks.	" "
24	Snake River Slick Bridge	42.50-115.25 (T6S,R6E,S34)	1	2	6-28	One on nest below bridge	" "
24	Snake River W. of Hammett	" S4	-	2	6-28	Suitable habitat below Hammett.	" "
24	Three-Island St. Pk.	" S31	-	2	6-28	On Snake R., w/ 1 Clark's.	" "
25	Palisades Res.	43.08-111.03 (T3S,R46E,S36)	-	5	6-19	Scattered on the reservoir.	" "
26	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	-	800	5-26	Common on this sector of this Refuge, but nests not known.	W. Stanley
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	-	6-29	Present, not known to breed.	J. Reynolds

Total Range in Western Grebe Nest = 242-360

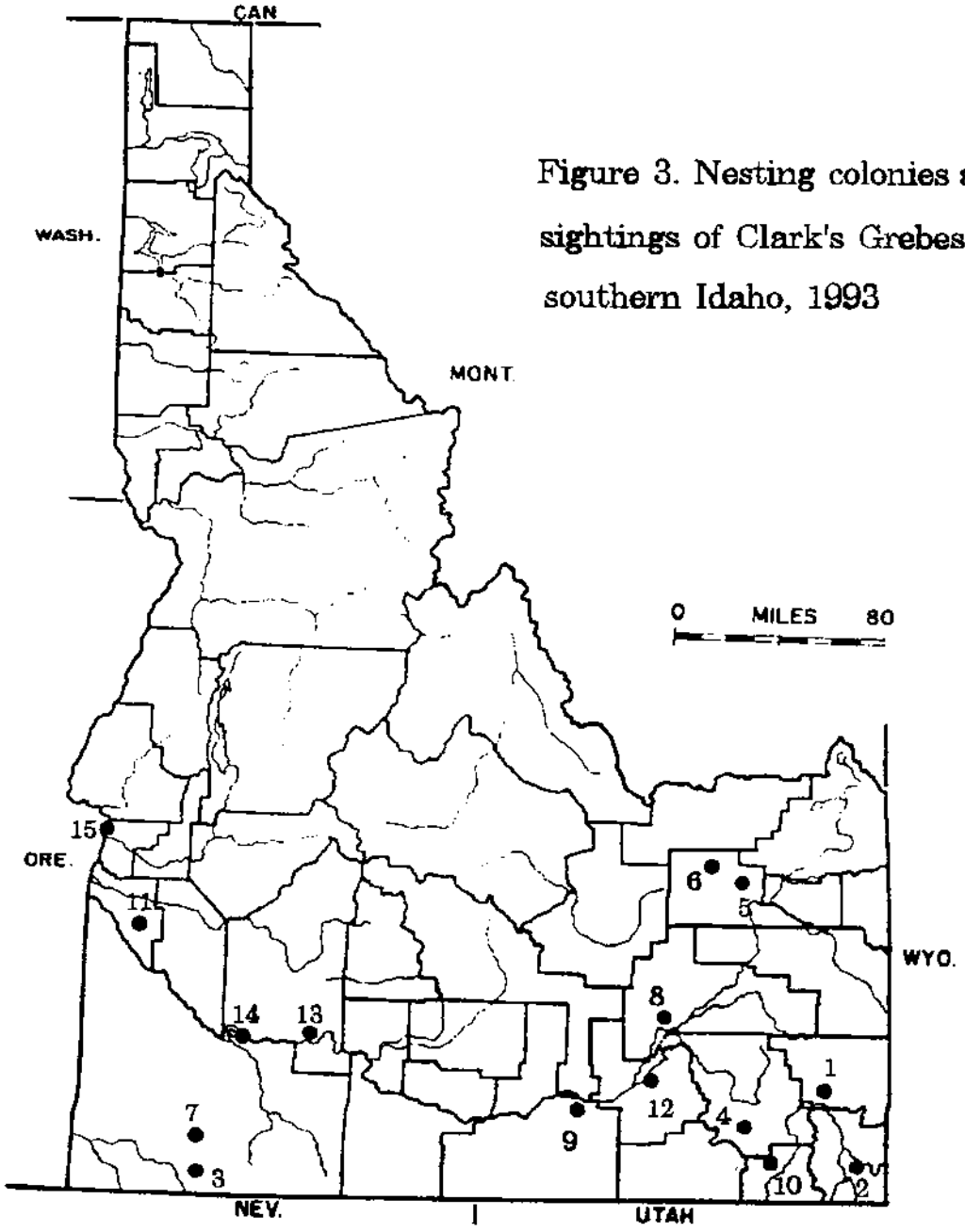

Figure 3. Nesting colonies and sightings of Clark's Grebes in southern Idaho, 1993

Table 3. Nesting Locations and Sightings of Clark's Grebes in Southern Idaho, 1993.

Map #	Location	Lat-Long.(TRS)	# Nests	# Birds	Date	Comments	Source
1	Alexander Reservoir	42.40-111.45 (T9S,R41E,S11)	-	8	7-2	4 of 10 Clark's (40%), Nesting?	This Study
1	" "	" "	-	2	6-19	"Several" here.	L. Hlavaty
2	Bear Lake NWR	42.11-111.19 (T14S,R44E,S11)	-	2	7-10	Both in the B. L. Outlet Canal	This Study
2	" " "	" " "	-	1	7-10	Mud Lake area, 1 of 42 (3%) Clark's	" "
3	Duck Valley Indian Reservation	41.59-115.55 (T16S,R2E,S11)	-	5	5-28	At least 120 grebes present (4%), Clark's on Mt. View Reservoir.	" "
4	Downey Sewage Ponds	42.25-112.07 (T12S,R37E,S34)	-	1	6-5	The only grebe present.	" "
5	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	1	6-7	1 of 6 grebes (17%) Clark's.	" "
6	Mud Lake WMA	43.53-112.25 (T7N,R34E,S35)	-	1	6-12	1 of 10 grebes (10%) Clark's.	" "
6	" " "	" " "	2-4	8	6-14	8 of 23 grebes (35%) Clark's, 3 pairs.	" "
6	" " "	" " "	-	1	7-9	1 of 48 grebes (2%) Clark's, N. side.	" "
7	Grassmeer Reservoir	42.25-115.45 (T13S,R4E,S30)	-	2	5-28	2 of 6 (33%) Clark's, no nesting.	" "
8	Am. Falls. Reservoir	42.59-112.36 (T5S,R33E, S36)	10-20	1	6-8	1 of 8 Clark's (12.5%), McTucker area.	" "
8	" " "	" " "	-	1	6-17	1 of 16 Clark's (6%), Danielson Cr.	" "
8	" " "	" " "	-	6	7-2	In Snake R., 1 w/ chick on back. 90 Westerns present, (7% Clark's)	" "
8	" " "	" " "	-	3	7-19	In Snake R., 1 w/ chick on back.	" "
8	" " "	" " "	-	4	8-12	4:125 (3%) Clark's, Danielson Cr.	" "
9	Minidoka NWR	42.40-113.20 (T9S,R26E,S26)	-	2	6-22	Massacre Rocks, 2:6 (33%) Clark's.	" "
9	" "	" " "	-	4	7-5	Bonanza Bar, 4:70 (6%) Clark's.	" "
9	" "	" " "	-	2	7-22	Bonanza Bar, 2:60 (3%) Clark's.	" "
9	" "	" " "	35-50	50+	8-20	Bonanza Bar, 101 grebes on nests, 37% of them were Clark's.	" "
10	Twin Lakes	42.20-112.00 (T14S,R39E,S24)	-	2	6-5	2:33 (6%) Clark's, no nesting.	" "

Table 3, cont. Nesting Locations and Sightings of Clark's Grebes in Southern Idaho, 1993.

Map #	Location	Lat-Long.(TRS)	# Nests	# Birds	Date	Comments	Source
11	Deer Flat NWR, Lake Lowell	43.30-116.45 (T3N,R3W,S33)	-	50	5-26	Lake Lowell, Clark's present.	W. Stanley
11	" " "	" "	-	6	6-3	6:24 (25%) Clark's, no nesting.	This Study
12	American Falls Res.	42.47-112.45 (T5S,R33E,S22)	1-3	2	7-1	2:28 (7%) Clark's, 1 chick, Seagull Bay	" "
13	Glenn's Ferry	42.53-115.15 (T5S,R9E,S26)	3-5	-	6-3	Slick Bridge area, high water may have caused abandonment.	J. Klott
14	C. J. Strike Res.	42.50-115.45 (T6S,R5E,S5)	4-6	-	6-3	Bruneau Arm, 5 old nests (July, 1992) in bulrushes.	J. Klott
15	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	10-15	20	5-26	Estimated that 20 of 600 grebes present are Clark's (2.5%) on the Snake River Sector of this refuge.	W. Stanley

Total Clark's Grebe Nests = 65-103

Range in Percent Clark's Grebes: 2.5-40%, Mean = 14.7%

AMERICAN WHITE PELICAN
Pelecanus erythrorhynchos
STATUS: Idaho State Species of Special Concern, Category A (priority species). Idaho Conservation Data Center rank is G3/S1 (rare or uncommon but not imperiled globally; critically imperiled in Idaho). Not federally listed.

Distribution and Movements
In the northwest, the American White Pelican breeds discontinuously in an area ranging from northern California and southern Oregon across to the Great Salt Lake and northward to southwestern Montana. Non-breeding birds can be found far from the breeding areas. In Idaho, breeding is restricted to the southern part of the state; although breeding currently occurs in Idaho, no colonies were previously located in a 1984 survey (Trost 1985).

Movement of these pelicans is almost entirely in the inland portions of the West. In the fall, they move away from their breeding areas to areas where they congregate, such as Bear River refuge in Utah. This post-breeding dispersal brings young birds from the Great Salt Lake area into southern Idaho before their migration to Mexico. White pelicans generally winter from southern California and Arizona south into Mexico.

Nesting success of American White Pelicans may have been affected by pesticide contamination (U.S. Fish and Wildlife Service 1982).

Habitat and Nesting
American White Pelicans nest colonially in groups of a few to several hundred pairs; colony formation occurs during April and May and most nests are started by mid-May (Hart 1989). Nesting is on small islands that offer flat or gently sloping surfaces and few obstructions, such as brush, to interfere with take-off and landing. These islands also usually have loose surface soil that can be used for nest construction.

These pelicans require both permanent water and isolation from human disturbance and mammalian predators for successful breeding. Feeding areas may be up to 50 miles (80km) away from the nesting areas, and the pelicans may fly as much as 375 miles (600km) round-trip to forage (Hart 1989). Food is almost entirely fish, largely the "rough fish" not desired by anglers. Since White Pelicans hunt from the surface of the water, rather than diving from the air, feeding areas are generally in shallow water. These pelicans sometimes hunt by cooperatively herding fish into shallow water until the fish become densely packed and vulnerable, or by encircling the fish in more open areas. They may also steal fish from cormorants (Anderson 1991).

Nests range from a patch of level ground, possibly with a slight depression, to a mound of dirt and debris with a noticeable rim. Mounds may be from 24-36 inches (60-90cm) diameter and 8-12 inches (20-30cm) in height. In this area, egg dates at Great

Salt Lake range from mid-April to early June, and at Yellowstone Park eggs are generally laid in late May. Clutch size ranges from 1-6 eggs; the most frequent number is two.

Survey Results

In the previous survey report (Trost 1985), it was predicted that pelicans would attempt to establish new colonies in Idaho. Since then colonies have been established at two locations, and potentially at a third near Three Islands State Park, where pelicans attempted to nest but were flooded out.

A growing colony has been started at Minidoka NWR, and this colony produced approximately 250 young this summer. The undisturbed nature of this refuge is probably responsible for the success of the colony.

The discovery of a colony on Gull Island in Blackfoot Reservoir was somewhat of a shock. A colony was last attempted on this site over 30 years ago, when local fishermen destroyed it (Burleigh 1972). It is ironic that our recent drought, along with increased agricultural runoff, has apparently caused the sports fisheries in this reservoir to collapse, resulting in almost no human disturbance to the pelicans, herons, and cormorants nesting on Gull Island. The reproductive success of all three species was excellent in 1993. The pelicans are so mobile that local feeding conditions are probably not critical. It remains to be seen whether they will remain sufficiently free from human disturbance to continue to occupy this traditional site. We recommend that the area be posted and patrolled between May and August to assure successful nesting by all three species.

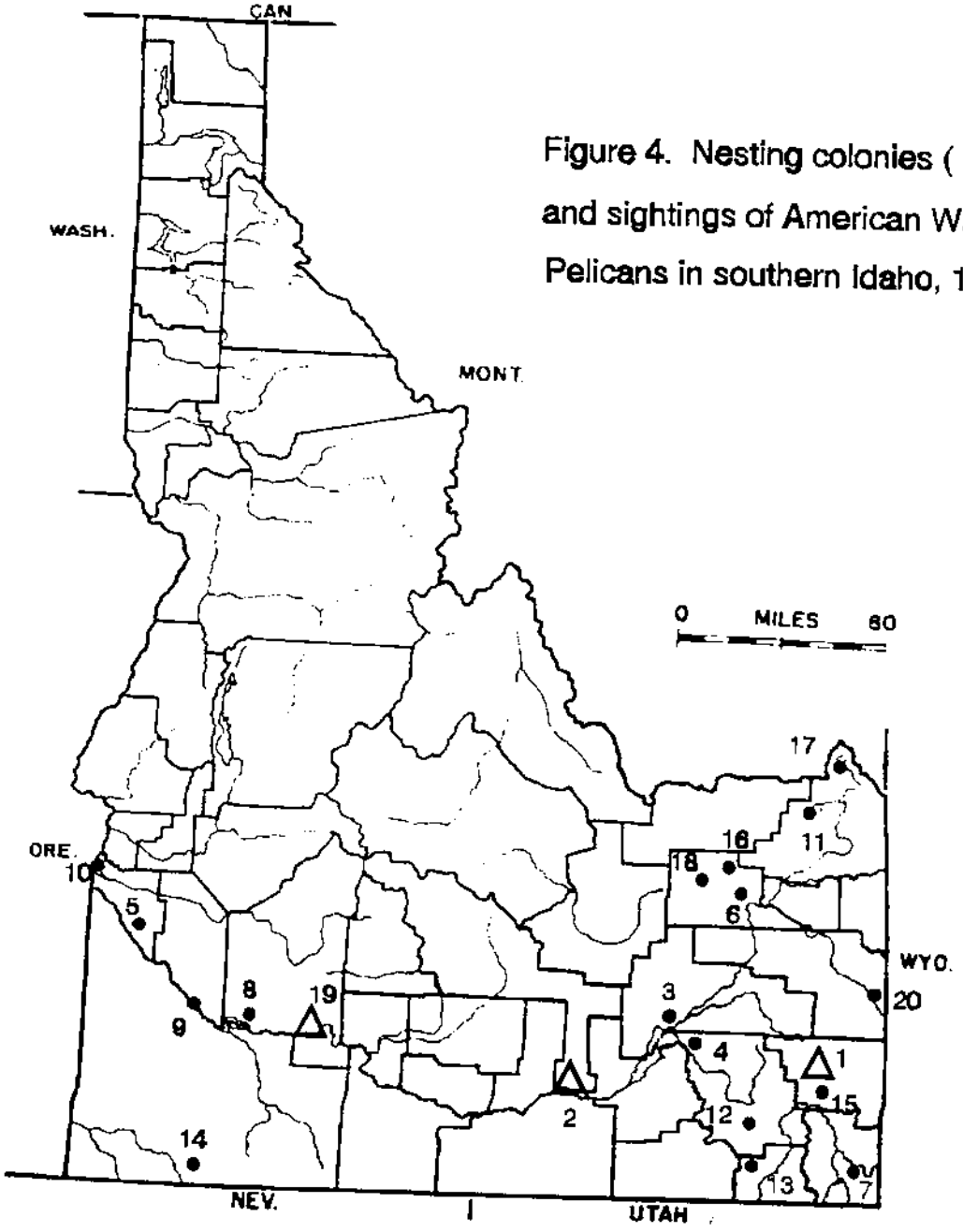

Figure 4. Nesting colonies (Δ) and sightings of American White Pelicans in southern Idaho, 1993.

Table 4. Nesting Locations and Sightings of American White Pelicans in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Blackfoot Res.	42.56-111.37 (T6S,R41E,S11)	-	250+	6-19	Possibly nest of Gull Island.	L. Hlavaty
1	" "	" "	-	150-200	7-4	Sitting on Gull Island, nesting?	This Study
1	" "	" "	-	160	8-3	10-15 young pelicans begging.	" "
1	" "	" "	80-100	125+	8-11	Large young (3/4ths grown) on top and west side of Gull Island.	" "
2	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	-	180	6-22	At least 20+ young on Gull Island.	" "
2	" "	" "	-	54+	6-24	Many "loafing" nearby, no lumps.	" "
2	" "	" "	-	150-200	7-4	Many large young on Gull Island.	" "
2	" "	" "	150-175	250+	8-19	These were flightless young swimming off both Gull Island and the small island to the west. We counted 100 nests on the west island.	" "
3	American Falls Res.	42.59-112.36 (T5S,R33E,S36)	-	63	6-8	McTucker area, foraging.	" "
3	" " "	" "	-	130+	6-12	Resting along the edge of Snake R.	" "
3	" " "	" "		120+	6-15	Resting along edge, McTucker area.	" "
3	" " "	" "	-	22	7-19	Entrance of Snake R.	" "
3	" " "	" "	-	75+	8-12	All along the north shore.	" "
4	American Falls Res.	42.48-112.33 (T5S,R33E,S21)	-	9	6-9	Sitting at mouth of Portneuf.	" "
4	" " "	" "	-	135+	6-17	Feeding w/ cormorants on east sdge.	" "
4	" " "	" "	-	176	7-1	With cormorants, feeding.	" "
4	" " "	" "	-	105	7-2	Under cormorant nests & foraging.	" "
4	" " "	" "	-	55+	7-25	Off towards Salt Lake in a soar.	" "
5	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	-	80+	6-3	On Lake Lowell, many w/o bill lumps.	" "
5	" " "	" "	-	3-500+	5-26	Present all summer, no breeding.	W. Stanley
6	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	3	6-11	Sitting on marsh.	This Study
6	" " "	" "	-	48	6-24	More than 5 with bill knobs.	" "
6	" " "	" "	-	1	7-3	Flies into main marsh.	" "

Table 4, cont. Nesting Locations and Sightings of American White Pelicans in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
7	Bear Lake NWR	42.11-111.19 (T14S,R44E,S11)	-	6	6-19	Three on Mud Lake.	This Study
7	" " "	" "	-	5	6-21	Overhead, near ibis colony.	" "
7	" " "	" "	-	13	7-10	Resting on Mud Lake.	" "
7	" " "	" "	-	100+	7-8	No nesting here, just foraging.	R. Sjostrom
8	C. J. Strike Res.	42.50-115.45 (T6S,R5E,S5)	-	50	5-26	Resting on Bruneau Arm.	This Study
8	" " "	" "	-	16	6-9	On an island below Loveridge Br.	" "
9	Grandview Area	42.50-116.10 (T5S,R3E,S14)	-	14	6-10	Floating on the Snake R.	" "
9	" "	" "	-	32	6-10	Soaring over Stork Island.	" "
10	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	25	5-30	On marsh, only 2-3 w/ lumps.	" "
11	Island Park Res.	44.25-111.36 (T13N,R42E,S36)	-	1	6-29	Feeding at west end of lake.	" "
11	" " "	" "	-	12	7-17	Resting on n.w. shore.	" "
12	Downey Slough	42.25-112.07 (T12S,R37E,S31)	-	3	6-5	Resting on large slough.	" "
13	Oxford Slough	42.15-112.02 (T13S,R38E,S35)	-	8	6-22	Resting near the ibis colony.	" "
14	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S11)	-	7	6-29	On Mountain View Reservoir, Too disturbed for nesting.	" "
15	Alexander Res.	42.40-111.45 (T9S,R41E,S11)	-	35	7-4	Resting along n.e. shore.	" "
16	Camas NWR	43.54-112.16 (T7N,R36E,S18)	-	1	7-5	Resting on Two-way Pond.	" "
16	" "	" "	-	present	6-16	Here in small numbers.	G. Deutcher
17	Henry's Lake	44.45-111.20 (T16N,R43E,S31)	-	3	7-17	Fishing along shore.	This Study
18	Mud Lake WMA	43.53-112.25 (T7N,R34E,S34)	-	12	7-21	Siting in marsh, all but one with knobs on bills.	" "
18	" " "	" "	-	15	8-4	Resting at east end in water.	" "
19	3 Island St. Park	42.50-115.25 T6S,R10E,S31)	-	3	6-28	Flying down the Snake R.	" "

Table 4, cont. Nesting Locations and Sightings of American White Pelicans in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
19	3 Island St. Park Snake River	42.50-115.25 (T6S,R10E,S31)	15	30+	6-3	About 0.25 miles upstream from Slick Bridge. High water flooded out about 15 mud nests on the island.	J. Klott
20	Palisades Res.	43.08-111.03 (T3S,R46E,S36)	-	64	6-18	Resting on new dikes at s. end.	This Study
-	Deer Flat NWR, Snake River	42.12-117.05 (T7N,R5W,S22)	-	500	5-26	Present in large numbers at times, not known to nest.	W. Stanley

Total Range in White Pelican Nests = 275-290

DOUBLE-CRESTED CORMORANT
Phalacrocorax auritus
STATUS: No current listing

Distribution and Movements
Double-crested cormorants breed discontinuously in the interior West, largely in northeast California and southern Oregon through northern Utah and north into Montana. They breed in the southern part of Idaho, largely on the portion of the Snake River Plain in the southeast corner of the state.

In late summer, these cormorants move in any direction away from their breeding areas, gathering in bays and estuaries before they migrate southward along coastlines, river valleys, and other watercourses. Birds from higher altitude lakes may migrate to lower areas. Wintering areas include the Pacific coast, the Gulf of Mexico, and the Rio Grande river valley south into Mexico; some winter over on open areas below dams on the Snake River in Idaho. Timing of spring migration varies from year to year; dates range from March to April.

Habitat and Nesting
General nesting habitat for Double-crested Cormorants includes freshwater lakes and their islands, ponds, rivers, and sloughs. Nesting sites are sometimes shared with gulls, making the cormorant nests susceptible to predation. To be successful, nest sites must be undisturbed by humans or mammalian predators, and a food source must be within 5-10 miles (8-16km) of the colony.

Nest sites include rocks, islets, islands, swamps, and steep cliffs facing the water. Nests are placed either on the ground or in trees at almost any height. The nests are constructed from sticks, algae, and other materials, and may be up to 24 inches (60cm) in diameter and the same in height, although many are lower. The nest depression is generally 9 inches (22cm) across and up to six inches (15cm) deep. Clutch sizes range from 2-7 eggs; 3-4 eggs is the most usual size.

Food is mostly fish, with some crustaceans, amphibians, and aquatic insects. In the Great Basin, these cormorants eat mostly "rough fish" of little interest to anglers: carp, perch, chub and suckers (Ryser 1985). Cormorants may dive to a depth of 60 feet (20m) in pursuit of fish (Knopf and Kennedy 1981).

Survey Results
In 1993, we found 11 colonies of Double-crested Cormorants, as opposed to the five reported for the 1984 survey (Trost 1985). In part, this increase is due to a better response to our questionnaire, for which we are appreciative.

One of the best ways to census cormorants is to conduct a dawn or dusk flight rate count. Our estimates at Minidoka NWR corresponded quite well with an actual nest count. The best time to conduct flight counts would be before the eggs hatch, since

after the young are well developed the counts will reflect some nests with both parents departing. As long as their reproduction date is taken into consideration, however, flight counts can be made any time in June or July.

In general, cormorants are doing well in Idaho. Their large populations are probably being maintained by high numbers of non-game fish in irrigation reservoirs.

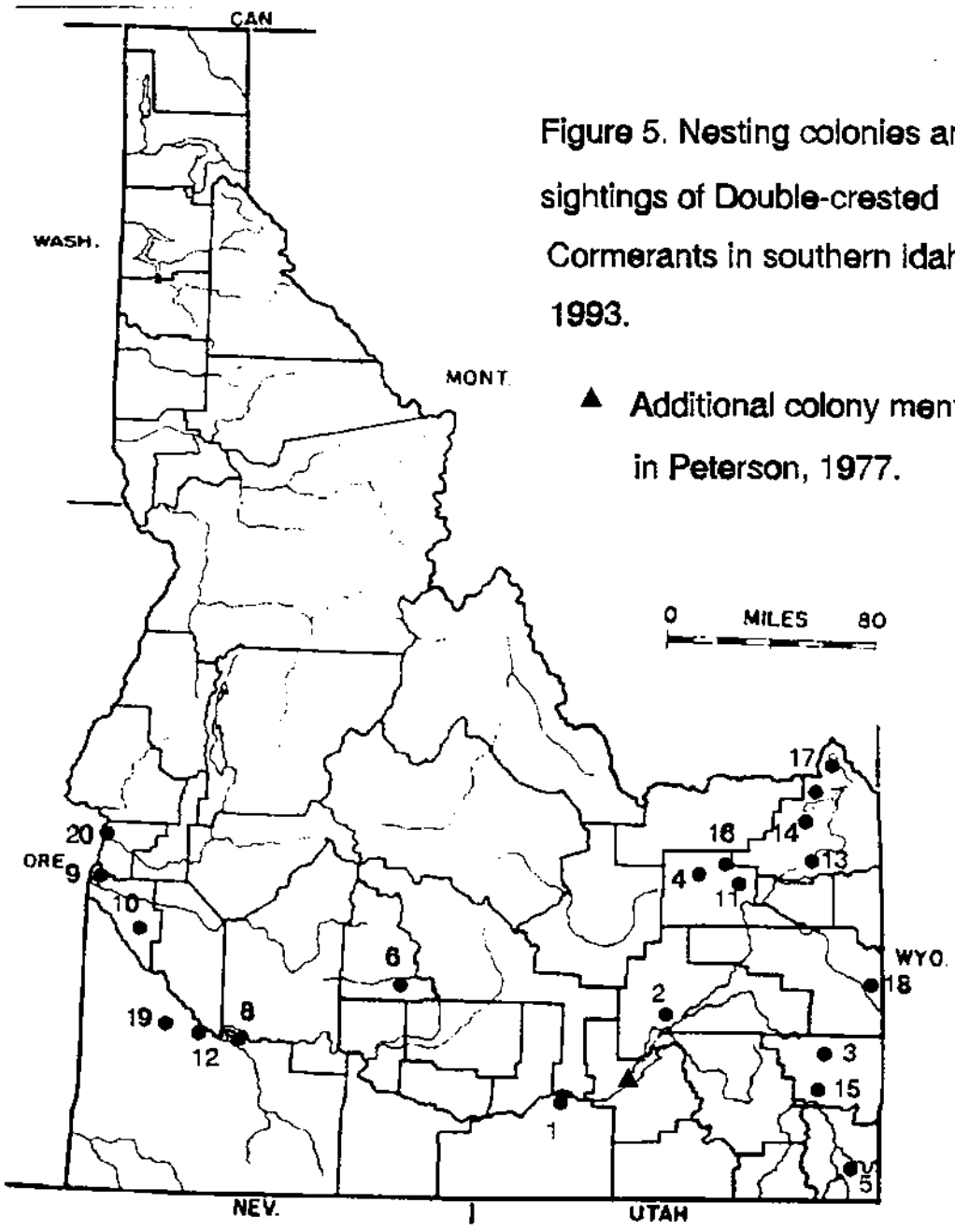

Figure 5. Nesting colonies and sightings of Double-crested Cormerants in southern Idaho, 1993.

▲ Additional colony mentioned in Peterson, 1977.

Table 5. Nesting Locations and Sightings of Double-crested Cormorants in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	-	268	6-22	Many large chicks are begging from their parents on Gull Island. Flight rates are 138/hr into and off the island.	This Study
1	" "	" "	-	806	6-24	Flight rates at dawn were 806/hr leaving Gull Island. Most were heading into the wind, to the west.	" "
1	" "	" "	-	240-468	7-5	The combined flight rates onto and away from Gull Island varied between 240/hr at 1130 hrs. and 468/hr at 1215 hrs.	" "
1	" "	" "	400-450	-	8-19	A ground count on the perimiter of Gull Island indicates at least 400 cormorant nests.	" "
2	American Falls Res.	42.59-112.36 (T5S,R33E,S36)	-	26	6-8	These birds flew by the mouth of the Snake River in an hour.	" "
2	" " "	" "	-	282	6-9	A dusk flight count at the mouth of the Portneuf resulted in 282/hr leaving and entering the colony.	" "
2	" " "	" "	-	13	6-11	Flights over the Snake R. mouth.	" "
2	" " "	" "	15-20	596	6-17	There are 15-20 nests in willows by the mouth of the Snake R. The flights into and out of the main colonies amounted to 596/hr.	" "
2	" " "	" S21	350-400	796	7-1	A dawn count of birds leaving the colony from the bluffs above the Portneuf R. resulted in 796/hr.	" "
2	" " "	" "	70-80	-	7-2	I canoed along the eastern edge of the reservoir & found 70+ new nests half way across the lake.	" "
2	" " "	" S36	-	25	7-19	Mouth of the Snake R., foraging.	" "
3	Blackfoot Res.	42.56-111.37 (T6S,R41E,S11)	-	200+	6-19	Long Island has 20+ nests and Gull Island has 10+ in the trees, as well as many more on the ground. The Spring Island colony is empty.	L. Hlavaty

Table 5, cont. Nesting Locations and Sightings of Double-crested Cormorants in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
3	Blackfoot Res.	42.56-111.37 (T6S,R41E,S11)	60-80	-	7-4	About 40 nests are on top of Gull Island and another 20 in the trees on Long Island.	This Study
3	" "	" "	-	15-20	8-3	Young birds still on Gull Is.	" "
3	" "	" "	-	50-75	8-11	These nearly full grown chicks huddled near the top of Gull Is.	" "
4	Mud Lake WMA	43.53-112.25 (T7N,R37E,S34)	-	1	6-11	Only one cormorant seen.	" "
4	" " "	" "	-	-	6-15	The old colony site has only 2-3 active nests, but an IF&G expert, Don Kemner, said there are 200+ nests along the north shore.	" "
4	" " "	" "	-	91	6-25	All nests visable from the observation were counted. The numbers per nest were 2,2,2,3, 2,3,& 3 (mean = 2.4/nest).	" "
4	" " "	" "	65-85	-	7-9	Two colonies counted - one near the tower and the other further out near open water.	" "
4	" " "	" "	-	-	7-21	Most are fledged, but these 9 are on the nests still.	" "
5	Bear Lake NWR	42.09-111.20 (T15S,R44E,S34)	25-35	60	7-8	Small colony on west end of Rainbow Island. About 35 young are produced a year.	R. Sjostrom
5	" " "	" "	-	4	6-21	Only 4 cormorants seen flying while watching an hour at dusk.	This Study
6	Mormon Reservoir	43.15-114.50 (T2S,R14E,S19)	5-10	5	6-13	Birds flushed off the south shore of Gull Island, probably off nests.	" "
7	Island Park Res.	44.25-111.36 (T13N,R42E,S36)	-	3	6-29	Flying along west end of res.	" "
7	" " "	" "	60-80	60+	7-17	A large colony on the south end of the island, also five nests on each side. Young large, 2-3 per nest.	" "

Table 5, cont. Nesting Locations and Sightings of Double-crested Cormorants in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
8	C. J. Strike Res.	42.50-115.45 (T6S,R5E,S5)	-	1	5-28	Flying down river.	This Study
9	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	5	5-30	Flying up & down river.	" "
10	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	5-10	10	6-2	On the Lake Lowell Sector there are seven nests seen on Gosling Island, where W. Stanley reports 30 nests.	" "
10	" " "	" "	25-35	1-200	5-26	On an island with herons.	W. Stanley
11	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	4	6-7	On a fill island in the marsh.	This Study
11	" "	" "	-	8	6-24	All seen from near the Ibis colony.	" "
11	" "	" "	-	19	6-19	Seen while walking around the edge of the ibis colony.	" "
11	" "	" "	-	5	7-3	Walk around the entire main marsh.	
12	Stork Island	42.50-116.1 (T5S,R3E,S14)	-	20+	6-10	In Grandview area Snake R., with night-herons and GBH. In four Cormorant nests there were 3 nests w/ 4 young and 1 with 3 (mean = 3.75).	" "
12	" "	" "	10-20	40	6-1	Nests hidden in the vegetation of Stork Island. Small young in nests. Scoped from river bank.	J. Doremus
13	Mesa Falls Marsh	44.10-111.10 (T10N,R44E,S18)	-	1	6-28	One bird on 10+ acre pond.	This Study
14	Harriman St. Park	44.20-111.30 (T12N,R43E,S27)	-	1	6-29	On Silver Lake.	" "
14	" " "	" "	-	1	7-16	" " " "	" "
15	Alexander Res.	42.40-111.45 (T9N,R41E,S11)	-	4	7-4	Resting on shore.	" "
16	Camas NWR	43.59-112.16 (T5S,R33E,S30)	-	present	6-16	Seen on Ray's lake.	G. Deutcher
16	" "	" "	-	2	7-5	On Ray's Lake, resting.	This Study

Table 5, cont. Nesting Locations and Sightings of Double-crested Cormorants in Southern Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
17	Henry's Lake	44.45-111.20 (T44N,R43E,S31)	-	25	7-17	On n.w. shore, no nests seen.	This Study
18	Palisades Res.	43.08-111.03 (T3S,R46E,S36)	-	33	6-18	Roosting on new dike at s. end.	" "
19	Foreman Res.	42.55-116.30 (T5S,R1E,S3NW)	5-6	10-12	4-8	In old GBH colony, new this year.	M. Mathis
20	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	80-90	300	5-26	Large colony on Goshling Island, in the Snake River Sector.	W. Stanley

Total Range in Cormorant Nests = 1,175-1,401

GREAT BLUE HERON
Ardea herodias
STATUS: No current listing

Distribution and Movements
The Great Blue Heron breeds locally throughout the northwest; pre-breeders and nonbreeders may be present during breeding season in areas where there is no actual breeding. In Idaho, Great Blue Herons breed in suitable habitat throughout the state. They tend to be highly traditional in their use of nest sites unless disturbance occurs during the egg-laying period. Several colonies of herons are known to have been deserted after Bald Eagles settled in the area.

Post-breeding dispersal occurs as soon as the young are able to fly; this dispersal can be in any direction from the breeding area. In the fall, there is a general southward migration, but breeding age individuals sometimes remain as far north as British Columbia, Wyoming, and Idaho. Wintering birds remain locally on areas of open water. In the spring, migration stretches from February to May. Migration is largely diurnal.

Habitat and Nesting
Feeding takes place around bodies of water in wet meadows, pastures, and dry fields, and prey consists of various fishes (mostly non-game), amphibians (largely frogs), snakes, small mammals, etc. Great Blue Herons generally hunt using stand-and-wait tactics or by slowly stalking prey, but have been seen stealing food from other birds, as well as stalking red phalaropes (*Phalaropus fulicaria*) in shallow water (Merrifield 1992).

Breeding areas usually contain old nests, and are located by shallow areas of either salt or fresh water, such as the edges of lakes. Nest placement is variable, and nests can be found both in tall trees and in tule rushes. New nests are small platforms of sticks as small as 18 inches (45cm) in diameter, while older nests can be 36-48 inches (90-120cm) across, with an inner depression 10 inches (25cm) in diameter. Clutch size ranges from 1-7 eggs; usually 3-5 eggs are laid.

Survey Results
The Great Blue Heron continues to be the most widespread and successful ciconiform in Idaho. We did not attempt to census the northern Idaho colonies, since they are apparently not threatened. We also did not make an April aerial survey for this species prior to leaf-out, which probably reduced our accuracy in measuring colony sizes and locations in southern Idaho. Flight rate counts on this species are not especially reliable, as there is no dawn and dusk surge in their departures or arrivals at colonies. Nevertheless, we feel that we have obtained an adequate measure of their colony dispersion and sizes. Numbers seem comparable to those reported in the 1984 survey (Trost

1985), and we finally obtained a measure of the huge colony on Thurman Ridge in the area of Island Park Reservoir. This colony is similar to the one above Palisades Reservoir, with herons nesting high in Douglas fir trees at traditional sites.

Changes that can occur on a local level due to species interactions and human disturbance were elucidated through input from Mike DeLate, a resident of Teton Valley. One of the colonies there currently consists of only a single nest, which hardly qualifies as a "colony". Other mating herons from the colony responded to the presence of a Bald Eagle (*Haliaeetus leucocephalus*) and moved their nests approximately 0.5 miles to the north. The local landowner bulldozed the cottonwoods, causing the herons to move a second time, after which they presumably brought off at least some young.

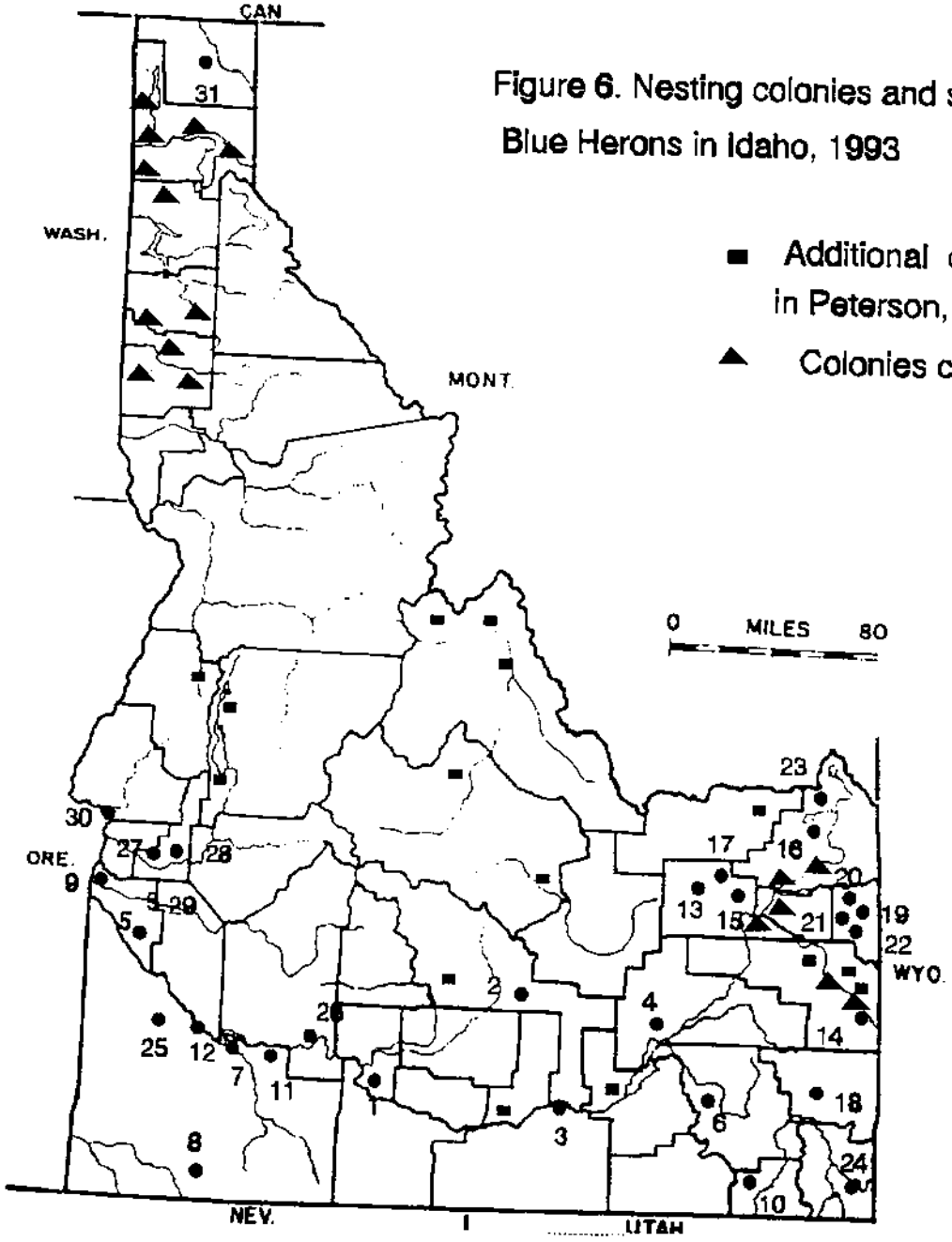

Figure 6. Nesting colonies and sightings of Great Blue Herons in Idaho, 1993

■ Additional colonies mentioned in Peterson, 1977.

▲ Colonies cited in Trost, 1984.

Table 6. Nesting Locations and Sightings of Great Blue Herons in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Thousand Springs	42.41-114.50 (T8S,R14E,S19)	-	23	5-30	In the colony at the mouth of Salmon Falls Creek. many large young are begging. Flight rate was 23/hr.	This Study
1	" "	" "	50-70	-	6-3	Nests counted by scope in winter.	J. Klott
2	Silver Creek	43.25-114.10 (T1S,R19E,S14)	18-22	20	6-12	Nests in tall cottonwoods just n. of US 20, 5 miles w. of Picabo.	This Study
3	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	35-40	-	6-22	In trees s. of the dike near Gull Island. Young large.	" "
3	" "	" "	-	21	6-24	Flight rate was 21/hr at dawn.	" "
4	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	8	6-8	Flight rate was 8/hr at McTucker Springs area between 0930-1030.	" "
4	" " "	" "	-	14	6-11	Flight rate was 14/hr at McTucker Springs area between 1250-1350.	" "
4	" " "	" "	-	9	6-15	McTucker Springs area, flight rate was 9/hr.	" "
4	" " "	" "	-	15	6-17	While paddling along the eastern edge of the res., 15 flew over.	" "
4	" " "	" "	35-50	27	7-2	Seen while canoeing up Snake R. near McTucker Springs.	" "
4	" " "	" S21	-	5	7-14	Five/hr at Siphon Pond heading west at the Portneuf River.	" "
4	" " "	" S36	-	9	7-19	Flight rate was 9/hr at McTucker.	" "
5	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	-	1	6-2	Lake Lowell, nesting almost over, a few young are still in the nests, near Access 506.	" "
5	" " "	" "	38	100	5-26	Lake Lowell.	W. Stanley
6	McCammon	42.40-112.25 (T9S,R36E,S27)	9	12	6-3	In dead trees on west side of the valley, young 2/3rds grown.	This Study
7	C. J. Strike Res.	42.50-115.45 (T6S,R5E,S5)	-	2	5-28	Flight rate = 2/hr at Loveridge Bridge (Hwy 51).	" "
7	" " "	" "	10	25+	6-9	Eighteen young counted in the 10 nests, and at dusk 20-25 adults here.	" "

Table 6, cont. Nesting Locations and Sightings of Great Blue Herons in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
7	C. J. Strike Res.	42.50-115.45 (T6S,R5E,S5)	12	20	6-8	Herons on ground, hard to count from mainland. On islands below the bridge.	J. Doremus
8	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S11)	14+	14	5-28	Mountain View Res. - not sure where the heron colony is, but flight rate was 14/hr heading s.w. of the reservoir.	This Study
9	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	5	5-30	Flying up & down the Boise R.	" "
10	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	-	1	6-5	One GBH over the main marsh.	" "
10	" "	" "	-	2	6-17	Flight rate was 2/hr over marsh.	" "
10	" "	" "	-	6	6-22	Flight rate = 2/hr at 2 spots.	" "
10	" "	" "	14	14	6-23	Adults flushed from nests, chicks almost full grown.	" "
11	Bruneau Dunes Lake	42.50-115.35 (T6S,R6E,S13)	-	5	6-9	All perched in cottonwood trees, at least one is a juvenile.	" "
12	Stork Island	42.52-116.00 (T5S,R3E,S14)	-	10	6-1	Grandview area, probably more, as hidden in veg.	J. Doremus
12	" " "	" "	7+	10	6-10	Float around Stork island in canoe, 12 empty nests, GBH # = 3, 2, & 1/nest.	This Study
13	Mud Lake WMA	43.53-112.25 (T7N,R37E,S34)	-	1	6-12	North side, flight rate = 1/hr.	" "
13	" " "	" "	-	3	6-14	Overhead near the Ibis colony.	" "
13	" " "	" "	-	4	6-15	South side, Flight rate = 4/hour.	" "
13	" " "	" "	-	2	6-25	Counted on east side of Ibis colony	" "
13	" " "	" "	-	3	6-25	Near tower on n. side, in the area of cormorant colony.	" "
13	" " "	" "	-	2	7-9	In west marsh, 2 overhead.	" "
13	" " "	" "	-	3	7-21	Seen from south dike.	" "
13	" " "	" "	10-15	-	6-10	On north side, by tower.	D. Kemner
14	Palisades Res.	43.08-111.03 (T3S,R46E,S36)	-	17	6-18	Flushed off dikes at s. end.	This Study
14	" "	" "	57+	11+	6-19	On hill to east, 11 nests had chicks (9 w/2, 2 w/1).	" "

Table 6, cont. Nesting Locations and Sightings of Great Blue Herons in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
14	Palisades Res.	43.08-111.03 (T3S,R46E,S36)	20-30	-	6-19	In Swan Valley, near Kelley's Island, on South Fork.	This Study
15	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	2	6-24	Near Ibis colony, foraging.	" "
15	" "	" "	-	1	6-24	One bird flushed from the marsh.	" "
16	Island Park Res.	44.25-111.36 (T13N,R42E,S36)	75+	150	6-29	On Thurman Ridge, west of the dam. A "huge cloud" of herons took off when he entered the colony.	M. Mickelson
17	Camas NWR	43.54-112.16 (T7N,R36E,S30)	-	14	6-29	Counted on Ray's Lake.	G. Deutcher
17	" "	" "	-	6	6-29	Seen feeding in canals.	This Study
17	" "	" "S18	-	5	7-5	Seen near Two-way Pond	" "
17	" "	" "S30	15	18	7-8	Flushed off nests at Ray's Lake	" "
18	Blackfoot Res.	42.56-111.37 (T6S,R41E,S11)	25+	50	6-19	Nesting on Gull Island. No nests in old colony on Spring Island.	L. Hlavaty
18	" "	" "	2	4	7-4	Two nests on e. side Gull Island.	This Study
18	" "	" "	10+	15+	8-11	Fleging young scrambling to get away from me on Gull Island.	" "
19	Tetonia	43.40-111.08 (T6N,R45E,S22)	4	-	7-17	Young already fledged.	M. DeLate
20	Felt	43.45-111.09 (T6N,R45E,S17)	1	-	7-17	One nest along Badger Creek.	" "
21	Pack Saddle Rd.	43.35-111.10 (T6N,R45E,S12)	20+	-	7-17	On Teton River, about 1/4th mile south of Packsaddle Rd.	" "
22	West of Driggs	43.30-111.10 (T6N,R45E,S33)	17	-	7-17	Bald Eagles moved in the colony s. of Horseshoe Rd., which caused the herons to move to the n. A rancher bulldozed the trees, so the herons moved again, this time to the Pack Saddle colony.	" "
23	Island Park Res.	44.25-111.36 (T13N,R42E,S36)	5+	10	7-17	Nests seen on s. side of island in the west arm, with cormorants.	This Study
24	Bear Lake NWR	42.11-111.19 (T14S,R44E,S34)	15	30	7-9	In Mud Lake area. About 20 young raised.	R. Sjostrom
24	" " "	" "	70	140	7-9	Near Dingle on the Bear River. About 100 young raised (1.5/nest).	" "

Table 6, cont. Nesting Locations and Sightings of Great Blue Herons in Idaho, 1993.

Map *	Location	Lat-Long. (TRS)	* Nests	* Birds	Date	Comments	Source
25	Foreman's Res.	42.55-116.30 (T5S,R1E,S3NW)	6	12	6-17	Old GBH colony, cormorants moved in this year & fewer herons are here now.	M. Mathis
26	Glenns Ferry	42.50-115.25 (T5S,R9E,S34NE)	12	24+	6-3	On island in Snake R. w. of Slick Bridge.	J. Klott
27	Emmett	43.50-116.20 (T6N,R1W,S9)	20	-	5-26	On Smith Island, about a mile downstream from Emmett.	A. Ogden
28	Montour WMA	43.52-116.18 (T6N,R1W,S33)	10-15	-	5-26	About 1/2 mile below the Montour bridge, e. of Emmett.	" "
29	Boise River	43.40-116.50 (T4N,R1W,S12)	20+	-	5-26	Several small colonies along the river between Boise & Caldwell. Not adequately censused.	" "
30	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	110	500	6-2	On islands in the Snake River Sector of the refuge (Gosling-86, Feral-16, & Silo-8). There is also a colony on the Snake R. between Notus and Parma, with 22 nests last summer.	W. Stanley
31	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	35-40	-	6-29	The colony is about 6 miles e. the refuge.	J. Reynolds

Total Range in Great Blue Heron Nests: 801-983

BLACK-CROWNED NIGHT-HERON
Nycticorax nycticorax
STATUS: No current listing

Distribution and Movements
Black-crowned Night-herons breed from southern Washington, Oregon, and southern Idaho southward to the Mexican border. In Idaho, breeding occurs from the northern edge of the Snake River Plain southward.

Post-breeding dispersal carries individuals well away from the limits of the breeding range. These herons winter southward into Mexico, although individuals have wintered in Oregon and in Utah at the Bear River Refuge. In southern Idaho, birds have wintered at Thousand Springs.

Numbers of Black-crowned Night-herons were depleted in the late 1970's and early 1980's due to organochlorine pesticide contamination (Findholt and Trost 1979, Henny et al. 1984), but the decline may be starting to reverse in Idaho (Trost 1985) and elsewhere (Henny et al. 1985).

Habitat and Nesting
Nesting habitat is extremely varied, although almost all wading habitats are utilized. Nesting takes place in wooded habitats, but nest sites are highly variable, and may be on the ground, in tule beds, or in trees as high as 150 feet (50m). The nest itself is constructed from whatever materials are locally available, and may be concealed or open to view. Typically, nests are very close together and are found in colonies with other heron species and cormorants. Clutch size varies from 1-7 eggs; 3-5 eggs is the most common size.

Food taken includes fishes, frogs, and tadpoles as well as insects, some vegetable matter, and occasional small mammals and young birds. Black-crowned Night-herons sometimes hunt in gull colonies, taking unattended chicks.

Survey Results
Black-crowned Night-herons have continued to increase in Idaho, as predicted by Henny et al. (1984) and Trost (1985). We found over 150 more nests in 1993 than in 1984 (this in part reflects a greater survey effort).

Numbers of these herons still seem somewhat depressed, however. At Blackfoot Reservoir the colony at Spring Island was deserted, quite likely because during the drought it was connected with the mainland and heavily grazed by cattle. Herons still have not re-invaded Long Island, and a maximum of about 10 nests were found on Gull Island, which is essentially the same number as in 1984. The colony at Island Park Reservoir has begun again, but numbers are nowhere close to what they were in the mid-1970's.

However, Night-heron numbers were definitely up at Thousand Springs, where they have increased two or three-fold since 1984. Our survey also disclosed a colony at Duck Valley Indian Reservation that was not known in 1984.

In the Magic Valley, trout hatcheries are probably responsible for much of the Night-heron mortality in the area, and should be forced to put bird-proof cages around their young fish. This seems to be the only way to protect both fish-eating birds and their concentrated prey at these hatcheries.

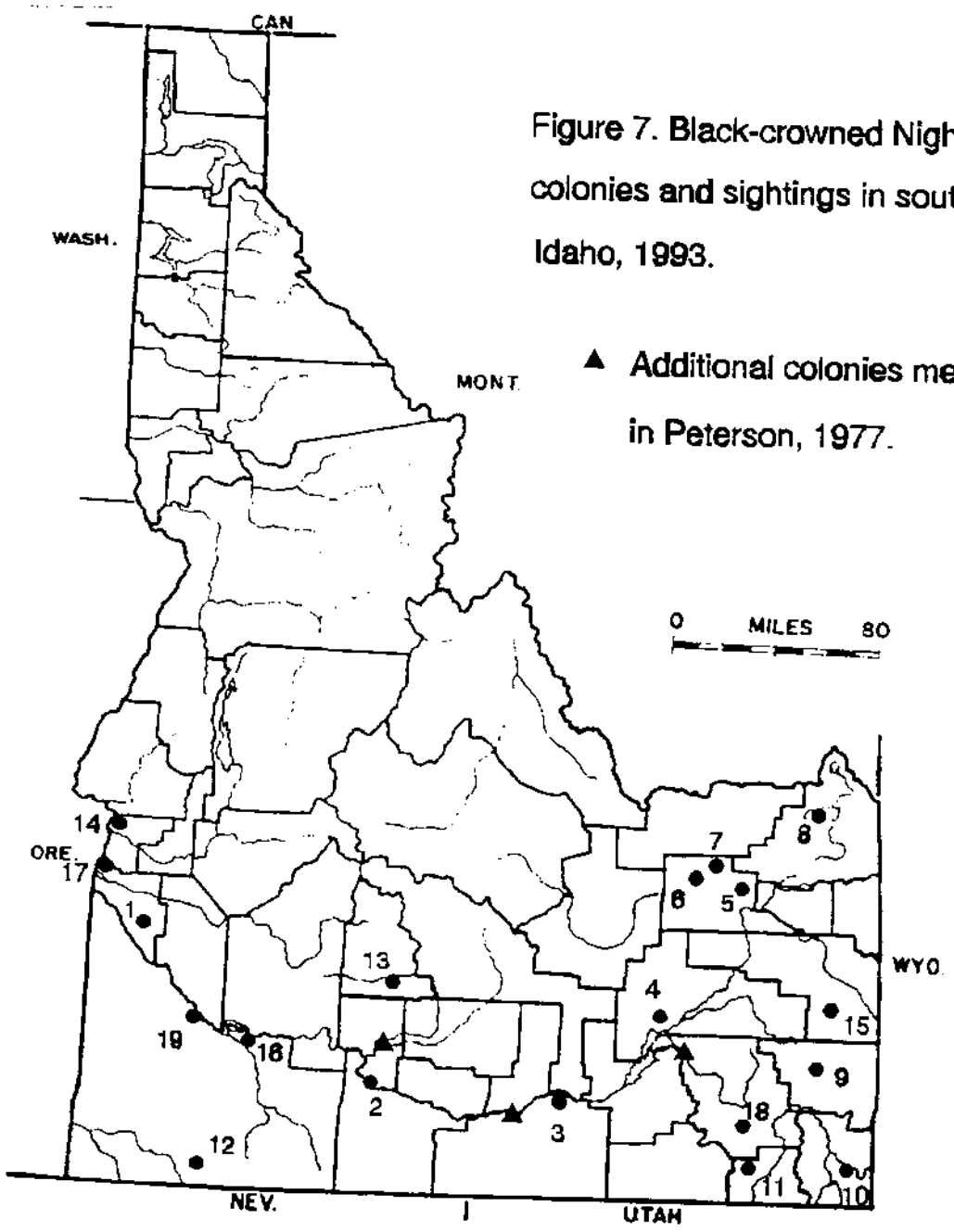

Figure 7. Black-crowned Night-Heron colonies and sightings in southern Idaho, 1993.

▲ Additional colonies mentioned in Peterson, 1977.

Table 7. Nesting Locations and Sightings of Black-crowned Night-Herons in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Deer Flat NWR Lake Lowell	43.40-116.45 (T3N,R3W,S33)	10	50	5-26	Two small colonies are now on Lake Lowell.	W. Stanley
1	" " "	" "	1	2	6-3	Some isolated nests around Lake Lowell, not particularly colonial.	This Study
2	Thousand Springs	42.41-114.50 (T8S,R14E,S19)	300-350+	450	5-30	Flight rate = 450/hr heading down the Snake R. at dusk. Many of the first birds were yearlings, later adults left.	" "
3	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	20-35+	2	6-22	Many nests along edge of Gull Is., as well as the edge of the mainland and the small island to w. of Gull. Also some nests in the slough to the s. of the dike road.	" "
3	" "	" "	-	15	6-24	Flight rate = 15/hr at dawn off Gull Island.	" "
3	" "	" "	-	10	7-5	Fledged young were flying around.	" "
4	American Falls Res.	42.59-112.36 (T5S,R33E,S36)	-	3	6-8	Flight rate = 3/hr near McTucker Springs (0930-1030).	" "
4	" " "	" "	-	6	6-9	Flight rate = 36/hr, 2010-2020.	" "
4	" " "	" "	-	2	6-11	McTucker Springs area, midday.	" "
4	" " "	" "	-	1	6-15	McTucker area, 1/hr, 1845-1945.	" "
4	" " "	" "	30-50	12	7-2	Flushed from debris in the Snake River, near McTucker.	" "
4	" " "	" "	-	7	7-10	At Siphon Road at dusk.	
4	" " "	" "	-	8	7-19	Flushed along the Snake River, a few were this year's birds.	" "
5	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	4	6-7	Flying over the marsh at noon.	" "
5	" " "	" "	10-15	11	6-24	Flushed off marsh near the Ibis colony, main marsh.	" "
5	" " "	" "	-	9	6-24	Seen near the Ibis colony.	" "

Table 7, cont. Nesting Locations and Sightings of Black-crowned Night-Herons in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
5	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	1	8-4	Feeding yearling along ditch.	This Study
6	Mud Lake WMA	43.53-112.23 (T7N,R34E,S34)	15-20	1	6-14	One heron over the marsh.	" "
6	" " "	" "	2-3	-	6-15	In old colony site, most have moved north of here.	" "
6	" " "	" "	-	12	6-25	Flight rate = 12/hr between 2015-2125, near tower on n. side.	" "
6	" " "	" "	-	4	7-9	On the marsh, also while in canoe.	" "
6	" " "	" "	-	10	7-21	Along s. dike, young flying now.	
7	Camas NWR	43.54-112.16 (T7N,R36E,S30)	-	18	6-29	In colony along Camas Cr. at Ray's Lake, counted from airboat.	G. Deutcher
7	" "	" "	-	5	7-5	Flushed out of Two-way Pond.	This Study
7	" "	" "	25-30	36	7-8	Flushed from colony at Ray's Lake, Flight rate = 24/hr.	" "
8	Island Park Res.	44.25-111.35 (T13N,R42E,S36)	5-10	4	7-17	On s. end of the island in the west arm. Nesting with GBH & night-herons. Same colony as in the 1970's, but deserted for years.	" "
9	Blackfoot Res.	42.48-111.38 (T6S,R41E,S11)	10+	-	6-19	On Gull Island, but <u>not</u> in old colony on Spring Island.	L. Hlavaty
9	" "	" "	-	3	8-11	Three juveniles fly around Gull Island as I survey it.	This Study
10	Bear Lake NWR	42.09-111.19 (T15S,R44E,S34)	25-35	60	7-8	Nesting in tules with Ibis in Mud Lake.	R. Sjostrom
10	" " "	" "	-	1	6-21	A half-hour watch at dusk along Powerline Rd. yielded only one.	This Study
11	Oxford Slough WPA	42.15-112.02	-	8	6-5	All adults foraging in fields.	" "
11	" "	(T13S,R38E,S35)	15-30	20	6-23	Eight adults flushed off nests near the Ibis colony, flight rate was 32/hr at 1640-1655.	" "
12	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S29)	130	130	5-28	Birds counted sitting on nests in a colony by Hwy 51, about two miles n. of the reservation bldgs. Called "Donabahba Yogee" on map.	" "

Table 7. cont. Nesting Locations and Sightings of Black-crowned Night-Herons in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
12	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S29)	-	4	6-28	Only 4 night-herons by ibis, colony and five nests seen.	This Study
13	Mormon Reservoir	43.15-114.50 (T2S,R14E,S25)	8-12	12	6-13	Flushed off Gull Island, probably nesting, all but one adult.	" "
14	Deer Flat NWR Snake River	44.12-117.05 (T7N,R5W,S22)	40-50	200	5-26	Nesting under GBH on Gosling Island in this Snake River Sector of the Refuge. Also nesting on several other Refuge islands, but numbers less than 10 nests/island.	W. Stanley
14	" " "	" "	-	2	6-30	Both birds seen near Smith Island.	This Study
15	Gray's Lake NWR	43.01-111.27 (T3S,R43E,S4)	-	1	5-26	One adult flushed from east side	" "
16	C. J. Strike Res.	42.50-115.45 (T6S,R6E,S5)	10	-	6-3	On the WMA, nests not verified.	J. Klott
16	" " "	" "	-	1	5-28	One adult seen from Hwy 51 bridge.	This Study
17	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	6	5-30	All adults, foraging.	" "
18	Downey Sewage Lagoons	42.25-112.07 (T12S,R37E,S34)	-	1	6-5	One adult by sewage ponds.	" "
19	Stork Island	42.52-116.00 (T5S,R3E,S14)	1-3	2	6-1	Adults making food deliveries.	J. Doremus
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	present	6-29	On refuge, not known to nest.	J. Reynolds

Total Range of Nests: 657-804

SNOWY EGRET
Egretta thula
STATUS: No current listing

Distribution and Movements
Snowy egrets are generally expanding their breeding range, and currently breed from northeastern California and southern Oregon east to the western portion of Wyoming and southward to about the Mexican border. In Idaho, they breed from the Snake River Plain southward.

Post-breeding dispersal of Snowy Egrets is limited relative to that of other herons, and they usually migrate only a few hundred miles. Nonetheless, many band returns from Idaho birds have been from Mexico, and one was from Guatemala (Trost 1985). Migration occurs during both day and night.

In 1979, Snowy Egrets in Idaho were producing young at less than replacement rate, apparently due to the effects of DDE (Findholt 1984), but a 1984 survey indicated that reproduction was perhaps beginning to increase and populations to recover (Trost 1985). DDE levels have decreased in some other Western populations of Snowy Egrets (Henny et al. 1985).

Habitat and Nesting
Nesting takes place in marshy areas of fresh, brackish, or salt water. In the West, tule marshes are often used, and nests also are found in willows and bulrushes. Nests may be placed at ground level or at heights up to 30 feet (10m); 5-10 feet (2-3m) is common. The nest itself is formed of sticks a foot or two long, with lighter twigs in the cavity. Nests are generally elliptical in shape, flat, and loosely woven. Clutch size ranges from 3-6 eggs, with 3-5 eggs the most common size. Snowy egrets may nest colonially with other species of egrets and herons.

Snowy Egrets hunt in shallow water or open spaces, using stand-and-wait tactics or slowly stalking prey. In shallow water, they often startle their prey into movement by shaking one yellow foot each time they step forward. Food consists of small fishes, lizards, frogs, and snakes, as well as other animals down to the size of insects. Small mammals are sometimes eaten.

Survey Results
The cautious optimism expressed for this species in 1985 seems to have been vindicated by this survey. We found Snowy Egrets at several new locations, notably the huge colony at Duck Valley Indian Reservation. In addition, the colony at Fort Hall Bottoms in American Falls Reservoir has increased in size. However, other colonies are either quite depressed, such as Bear Lake NWR (down from 75-80 nests to 10-20), or holding steady (e.g. Oxford Slough WPA, Mud Lake WMA, and Camas NWR).

We view the status of this delicate neotropical migrant with continued cautious optimism. They need to be protected at their

nesting colonies, as well as at the ever-increasing number of fish hatcheries.

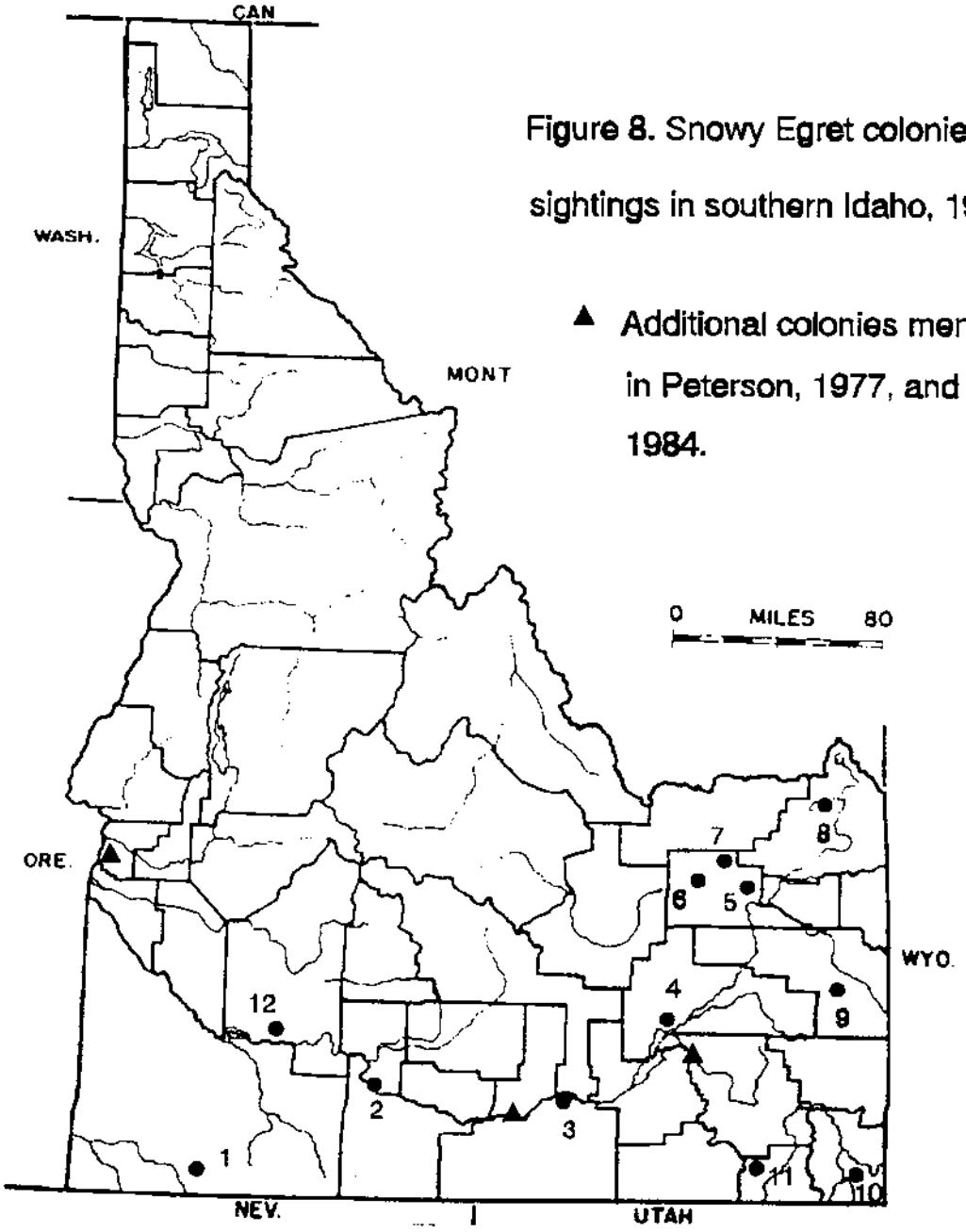

Figure 8. Snowy Egret colonies and sightings in southern Idaho, 1993

▲ Additional colonies mentioned in Peterson, 1977, and Trost, 1984.

Table 8. Nesting Locations and Sightings of Snowy Egrets in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S29)	131	131	5-28	Incubating birds on nests by Hwy 51, about 2 miles n. of Reservation headquarters. Called "Donabahba Yogee" on map.	This Study
1	" " "	" "	-	9	6-28	Counted in the Ibis colony	" "
1	" " "	" "	-	2	6-28	Only 1 pair of adults seen.	" "
2	Thousand Springs	42.41-114.50 (T8S,R14E,S19)	3-5	1	5-30	One egret flew into the heron colony during a dusk watch.	" "
3	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	3-7	2	6-22	Off of Gull Island. The trees along the edge are destroyed by nesting cormorants, so the egrets seem to have moved to the slough to the south.	" "
3	" "	" "	-	1	6-24	Dawn count yielded 1/hr flight rate.	" "
3	" "	" "	-	3	7-5	Foraging near Gull Island.	" "
4	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	50-75	65	6-8	A feeding group in the McTucker Springs area, 26 flying over.	" "
4	" " "	" "	-	29	6-11	McTucker Springs area.	" "
4	" " "	" "	-	20	6-15	Overhead, going towards the Fort Hall Bottoms.	" "
4	" " "	" "	-	35	6-17	Feeding near McTucker Spr.	" "
4	" " "	" "	8	8	7-2	In trees by the cormorant colony at the Portneuf R. entrance. This is a new Snowy colony, separate from the one at Spring Creek.	" "
4	" " "	" "	-	8	7-19	Feeding along n.e. edge of res.	" "
5	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	4	6-7	Flying over the main marsh.	" "
5	" " "	" "	10-20	26	6-24	Seen near the Ibis colony. In a transect throught he Ibis colony 8 Snowys were seen.	" "
6	Mud Lake WMA	43.53-112.25 (T7N,R37E,S34)	1-2	4	6-15	A few nests in the old colony, but most egrets have moved n.w.	" "
6	" " "	" "	10-15	5	7-21	Feeding along s. dike. The nesting colony was north, near the tower.	" "

Table 8, cont. Nesting Locations and Sightings of Snowy Egrets in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
7	Camas NWR	43.54-112.16 (T7N,R36E,S30)	6-10	8	6-29	Flushed from nests by Ray's Lake colony.	G. Deutcher
7	" "	" "	-	6	7-5	Flushed by Camas Creek.	This Study
7	" "	" "	-	12	7-8	I finally find the Ray's Lake colony and count young begging.	" "
8	Island Park Res.	44.25-111.36 (T13N,R42E,S36)	-	-	7-17	No Snowys seen on Reservoir.	" "
9	Blackfoot Res.	42.56-111.37 (T6S,R41E,S11)	-	20	6-19	On Gull Island, no longer on Spring Island.	L. Hlavaty
9	" "	" "	-	1	7-4	One bird seen flying in from n.	This Study
9	" "	" "	-	7	8-3	On Gull Island	" "
9	" "	" "	8-10	15	8-11	Young counted in nests on Gull Island.	" "
10	Bear Lake NWR	42.11-111.19 (T14S,R44E,S34)	10-20	100	7-8	At least 30 young are produced in the colony on Mud Lake	R. Sjostrom
10	" " "	" "	-	3	6-19	Along Powerline Rd., w. of refuge.	This Study
10	" " "	" "	-	5	6-21	Flying into the ibis colony.	" "
10	" " "	" "	-	5	7-10	Flying n. near Dingle.	" "
10	" " "	" "	-	7	7-10	Seen while canoeing on Mud Lake.	" "
11	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	-	5	6-5	Feeding in the marshes.	" "
11	" " "	" "	-	25	6-22	Seen in the ibis colony.	" "
11	" " "	" "	10-20	11	6-23	Flushed off nests in ibis colony.	" "
12	Skipjack Farm Snake River	42.53-115.30 (T6S,R8E,S4)	3	6	6-3	Nests not seen, but 3 pair in the area for a month.	J. Klott
-	Deer Flat NWR, Snake River	42.12-117.05 (T7N,R5W,S22)	-	<10	5-26	Present, but not known to breed.	W. Stanley

Total Range of Snowy Nests = 250-326

GREAT EGRET
Casmerodius albus
STATUS: State of Idaho Species of Special Concern, Category B (peripheral species). Idaho Conservation Data Center rank is G5/S1 (widespread, abundant, and secure globally; critically imperiled in Idaho). Not Federally listed.

Distribution and Movements
Great Egrets breed locally in various areas of the West, particularly Oregon, Nevada, California, and Idaho. In Idaho, known breeding locations are on or south of the Snake River Plain. There is extensive post-breeding dispersal before migration to Baja California and western Mexico, although many individuals remain to winter inside the breeding range.

Over the last 50 years, there have been distinct changes in breeding areas and migration patterns of this species, and these changes are continuing. The U.S. population of Great Egrets was lowest in the early 1900's, and rebounded to a high in the 1930's. Since then, there has been an apparent gradual decline in numbers due to drainage and development as well as the loss of major heronries.

Habitat and Nesting
Breeding habitat requirements for Great Egrets include open areas, such as ponds or openings along streams or in marshes, as well as nearby woods or thickets for nesting. Great Egrets may nest colonially with other species of herons. Nests are generally placed high in trees, but in Oregon have been found in tules (*Typha*) one to four feet above the water. Nests are usually flatter and less substantial than those of the Great Blue Heron, and many lack a lined depression. Clutch sizes are from 1-6 eggs; the most common number of eggs is three.

Feeding takes place largely in fresh water marshes and ponds; prey includes fishes, frogs, salamanders, etc.

Survey Results
The Great Egret continues to be present in southern Idaho, but in low numbers. We knew of only one breeding location in 1985, at Mud Lake WMA, but now know of five and possible six more. Known nests have increased in number from 1-2 to 17-26, which is cause for some optimism. Again, it has to be noted that commercial fish hatcheries must be forced to cover their fish if we hope to see this rare species become well established in Idaho.

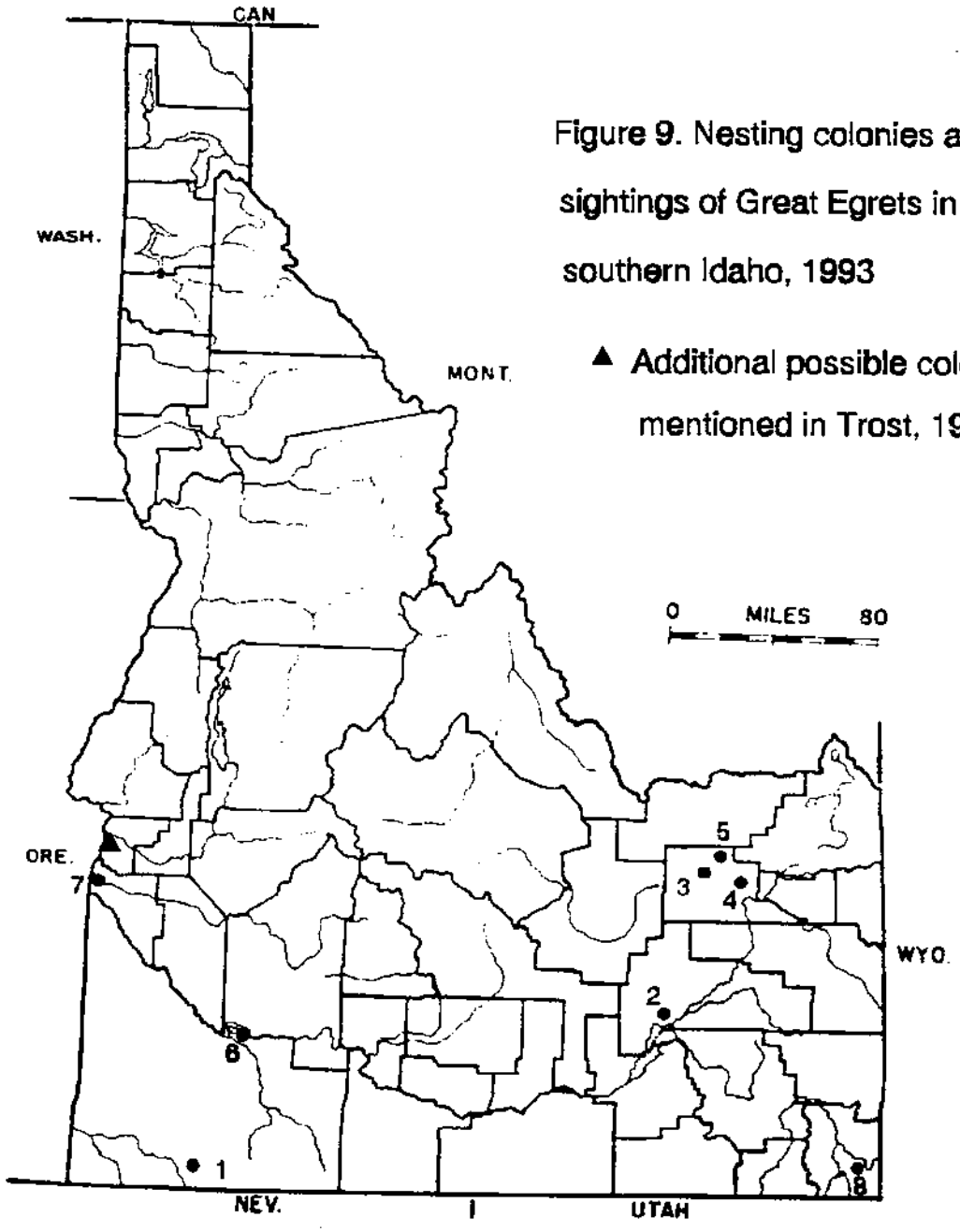

Figure 9. Nesting colonies and sightings of Great Egrets in southern Idaho, 1993

▲ Additional possible colony mentioned in Trost, 1984.

Table 9. Nesting Locations and Sightings of Great Egrets in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S29)	-	4	5-30	In the ibis colony by Hwy 51, about two miles north of the reservation headquarters. Sitting on nests. "Donabahba Yogee"	This Study
1	" " "	" "	-	1	6-28	Behind the ibis colony	
1	" " "	" "	3	6	6-28	Two pairs plus a nest w/ 2 young. In colony by Hwy 51.	" "
2	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	4-6	2	6-11	Flying over McTucker Springs, Nesting on bottoms by Spring Cr.	" "
2	" " "	" "	-	3	6-15	Three per hour toward the bottoms.	" "
2	" " "	" "	-	1	6-17	One over McTucker Springs area.	
2	" " "	" "	-	1	7-2	Over McTucker Sp. toward bottoms.	" "
2	" " "	" "	-	1	7-19	Over McTucker Sp. to the north.	" "
3	Mud Lake WMA	43.53-112.25 (T7N,R37E,S34)	-	2	6-14	Over north shore by ibis colony. Nests out from tower.	" "
3	" " "	" "	3-6	3	6-25	Two in cormorant colony by the tower on the north shore, another over.	" "
4	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	2-3	1	6-7	Over the east marsh marsh.	" "
4	" " "	" "	-	1	6-24	Near the ibis colony.	" "
4	" " "	" "	-	1	8-4	Feeding in main canal.	" "
5	Camas NWR	43.54-112.16 (T7N,R36E,S30)	4-6	10	6-29	Counted by airboat. In dead trees by Ray's Lake.	G. Deutcher
5	" "	" "	-	1	7-5	Feeding at Sandhole Lake.	This Study
5	" "	" "	-	4	7-8	I finally find the colony, young are begging.	" "
6	C. J. Strike Res.	42.50-115.45 (T6S,R5E,S3)	1-2	1	5-28	By islands below Loveridge Bridge.	" "
7	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	1	5-30	Flying over, down river.	" "
8	Bear Lake NWR	42.09-111.19 (T15S,R44E,S34)	-	2	7-8	Observed several times in late spring, not nesting.	R. Sjostrom

Table 9, cont. Nesting Locations and Sightings of Great Egrets in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
-	Deer Flat NWR, Snake River	42.12-117.05 (T7N,R5W,S22)	-	<10	5-26	Present, but not known to breed.	W. Stanley

Total Range in Great Egret Nests = 17-26

CATTLE EGRET
Bulbulcus ibis
STATUS: No current listing

Distribution and Movements
Cattle egrets are relatively recent immigrants to North America, and their range is still expanding. In the northwest, their northward breeding limit is currently along a line extending from northeastern California and southeastern Oregon to northeastern Montana. In Idaho, this northern boundary roughly follows the northern edge of the Snake River Plain.

Post-breeding dispersal is pronounced in this species, and birds may move in any direction from their breeding areas from July through early September. From September through November, Cattle Egrets move southward to winter in Mexico and parts of California. Spring migration occurs from February to April.

Habitat and Nesting
Cattle Egrets feed in open pastures, fields, meadows, and dry open country, especially where livestock is present. During dispersal or migration, they may feed in vacant lots, lawns, and road shoulders. Their prey consists primarily of insects, especially grasshoppers, which become vulnerable after being flushed by domestic animals or similar disturbance; they have been seen following plows. Frogs, lizards, and some small mammals are also eaten.

These egrets breed on islands or in willows or tamarisks along water, and breeding is colonial with other herons and ibises. The nest is 10-18 inches (25-45cm) in diameter with a depression 3-9 inches (7.5-22cm) deep, and is placed off the ground in willows or similar vegetation. Construction is of twigs, and nest height is typically from 3-30 feet (1-10m). Clutch size ranges from 2-5 eggs; 3-4 eggs is the most common number.

Survey Results
Since 1984, there has been a four to five-fold increase in the number of Cattle Egret nests in southern Idaho. This increase reflects both an increase in numbers of this peripheral species as well as a greater survey effort. Several new colonies have begun, including those at Blackfoot Reservoir, Bear Lake NWR, Oxford Slough WPA, and Camas NWR. However, these herons have apparently failed to continue nesting at Minidoka NWR, despite the fact that the colony site is well protected. This could be the result of a lack of space on the crowded Bird Island, but in any event indicates that Cattle Egret numbers can be characterized as either steady or showing a slow increase.

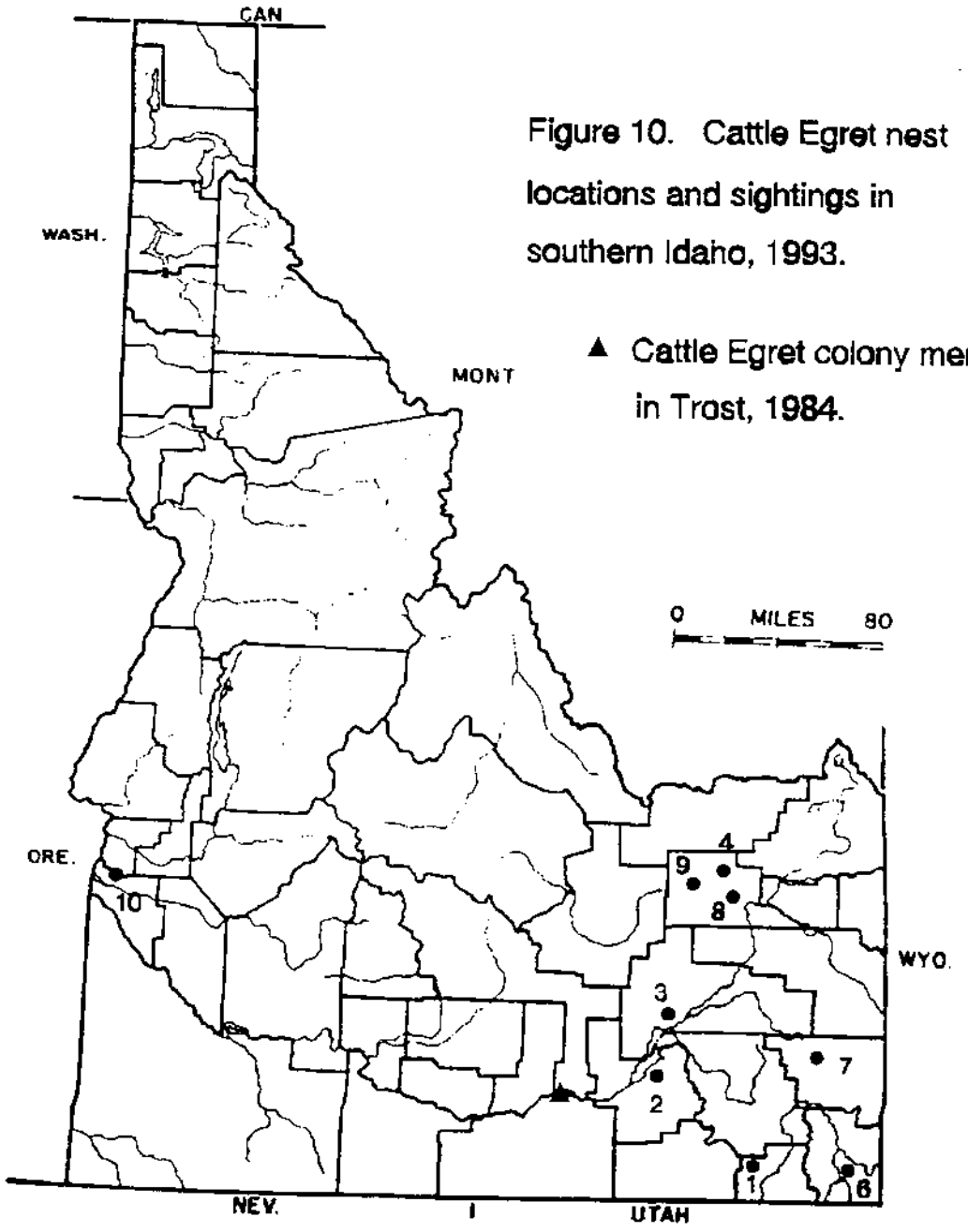

Figure 10. Cattle Egret nest locations and sightings in southern Idaho, 1993.

▲ Cattle Egret colony mentioned in Trost, 1984.

Table 10. Nesting Locations and Sightings of Cattle Egrets in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	-	7	6-5	Foraging in field on w. side.	This Study
1	" " " " "		5-6	8	6-23	Flushed off nests in Ibis colony, young 1/2 grown.	" "
2	American Falls Res.	42.48-112.40 (T5S,R33E,S21)	-	1	5-26	Near freeway, s. of reservoir.	" "
3	" " "	42.59-112.36 (T5S,R33E,S36)	-	1	6-15	One over McTucker Springs to Bottoms.	" "
3	" " " " "		-	1	7-2	One over lake to Bottoms.	" "
3	" " " " "		2-4	1	7-11	One over near McTucker Springs, small colony near Spring Creek.	" "
4	Camas NWR	43.54-112.16 (T7N,R36E,S30)	16	16	6-29	In colony by Ray's Lake, counted by airboat.	G. Deutcher
4	" "	" "	-	1	7-5	Flushed near colony off Camas Creek at Ray's Lake.	This Study
4	" "	" "	-	2	7-8	I flush two birds off nests.	" "
6	Bear Lake NWR	42.09-111.19 (T15S,R44E,S34)	5-10	30	7-8	In colony with Ibis, 10 young produced.	R. Sjostrom
7	Blackfoot Res.	42.48-111.38 (T6S,R41E,S13)	3+	6	6-19	First time seen on Gull Is.	L. Hlavaty
8	Market lake WMA	43.47-112.10 (T5N,R37E,S6)	1-2	-	6-10	Present on main marsh	D. Kemner
9	Mud Lake WMA	43.53-112.23 (T7N,R34E,S34)	1-2	-	6-10	Present in spring by tower.	D. Kemner
10	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	-	14	9-10	A flock was near Lake Lowell much of September.	J. Gatchett
-	Deer Flat NWR, Snake River	42.12-117.05 (T7N,R5W,S22)	-	<10	5-26	Present but not known to breed.	W. Stanley

Total Range in Cattle Egret Nests: 33-43

WHITE-FACED IBIS
Plegadis chihi
STATUS: Federal Category 2 species (listing as threatened or endangered may be appropriate but conclusive data not currently available). Idaho Conservation Data Center rank is G5/S2 (widespread, abundant, and secure globally; imperiled in Idaho). Listed by the federal Bureau of Land management as a Sensitive Species.

Distribution and Movements
In the West, the White-faced Ibis breeds locally in northeastern California, southeastern Oregon, northern Nevada and northern Utah, Wyoming and western Montana, and southern Idaho. In Idaho, the northern limit of breeding is at the northern boundary of the Snake River Plain. This ibis is resident over much of its range, but northern populations, including those in the West, winter in southern California and along the western coast of Mexico. White-faced Ibis return north in late March or early April, and depart for their wintering grounds in early September.

In the 1970's, Great Basin populations of White-faced Ibis were greatly reduced, apparently due to the effects of pesticide contamination encountered while wintering in Mexico. Nesting success had greatly increased, however, by the early 1980's (Ryser 1985).

Habitat and Nesting
White-faced Ibis feed along the shores of ponds and streams, in agricultural areas, and at the receding edges of irrigation reservoirs (Taylor and Trost 1989). In eastern Idaho, the extensive use of flood irrigation has increased foraging habitat for the ibis (Trost 1989); ibises generally prefer to forage in fields that are irrigated and relatively close to the colony (Bray and Klebenow 1988). However, White-faced Ibis are capable of foraging at rich food sources as much as 10-20 miles (16-32km) from the nesting area, and long flight lines of these birds can be seen moving to and from the feeding areas. These birds feed by probing for insects, leeches, worms, molluscs, crustaceans (especially crayfish), frogs and fishes.

Nesting areas are at traditional sites, and are located in areas of marsh vegetation such as tule or cattail swamp, preferably near recently mown or flooded fields. Nests are generally at ground level, but may be found in bushes or small trees growing by the water. Ground nests are made of dry cattail stalks or similar material, while tree nests are made of sticks and twigs, along with some green vegetation. White-faced Ibis often nest in colonies associated with nests of Snowy Egrets, Black-crowned Night Herons, and Franklin's Gulls. Clutch size ranges from 2-7 eggs, with 3-4 being the most common size.

Survey Results
The number of known White-faced Ibis colonies has increased from five to seven since the 1984 survey. The discovery of the colony

at Duck Valley Indian Reservation added considerably to the increase in known nests. Our count of this colony was quite accurate since the nests could simply be counted from a nearby hill above Highway 51. Despite our confidence in the nest numbers, we note that on June 28th an evening count recorded at least 2,300 ibis entering and leaving the colony. This huge number may reflect non-breeders that roost in the colony, or new groups of ibis may have been moving in to nest. There is apparently considerable inter-colony movement by this ibis, so their numbers in any season are dynamic (USFWS 1985).

Ibis are a very difficult species to accurately census. We attempted an aerial count, but even when we knew the exact location of the colony, we missed many nests. Ground counts are hampered by deep water and thick vegetation. Taking a canoe through a colony yields an idea of the colony area, but only a fraction of the nests can be counted when the colony includes as many as 700-800 nests. Flight rates remain a good way to assess the numbers of ibis in a colony if the inflationary effect of non-breeders is taken into account. Evening or dawn are the best times for most counts, but the observer must be aware of the foraging directions taken by the ibis, since they are highly social in their feeding flights. Several times during this survey our independent counts of a single colony were off by more than an order of magnitude, simply because one observer was not in view of the flight path taken by ibis that day.

Our general impression is that White-faced Ibis continue to increase in southern Idaho. Although there is apparently inter-colony movement, we feel that most of the increase is from local recruitment. Some colonies have dwindled, such as the one at American Falls Reservoir, and this is likely due to changes in local agricultural practices. The use of flood irrigation in the upper Snake River Plain is probably the single most important factor leading to the increase in ibis in Idaho.

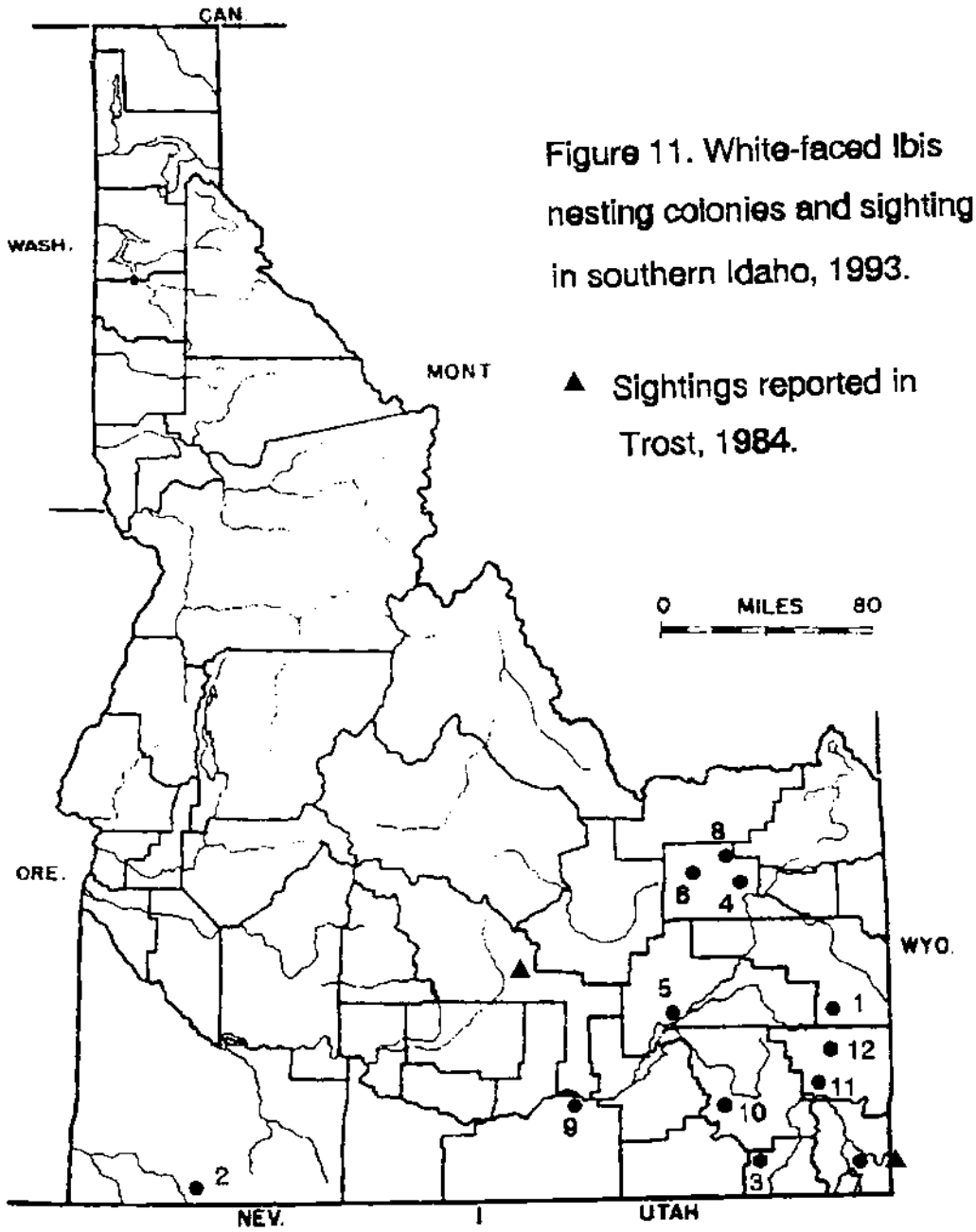

Figure 11. White-faced Ibis nesting colonies and sightings in southern Idaho, 1993.

▲ Sightings reported in Trost, 1984.

Table 11. Nesting Locations and Sightings of White-faced Ibis in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Gray's Lake NWR	43.01-111.27 (T3S-R43E,S4)	-	29	5-26	Flushed off nests by airboat, 9 nests seen, 7 w/4 & 2 w/2 eggs.	This Study
1	" " " " "		-	3	6-26	Foraging on n. side by Mann Rd.	" "
1	" " " " "		110-120	235	6-26	Counted near dusk from Hwy 34, flight back to nests (2015-2125).	" "
2	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S29)	720-730	750+	5-28	Incubating birds on nests by Hwy 51, about 2 miles n. of Res. Headquarters. A huge colony, with Snowy, & Great Egrets, plus night-herons. Called "Donabahba Yogee" on map.	" "
2	" " " " "		-	938	6-28	Flight rates to the south were 654-776/hr, with a total of 849 entering & 89 seen leaving the colony by Hwy 51.	" "
2	" " " " "		-	1382	6-28	Total count of ibis from the north was 1,127 in and 255 out, which should be added to the other count = 2,320 in this colony!	" "
3	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	-	515+	6-5	Flight rates were taken from two locations of Ibis from the north. The rates were 406/hr and 515/hr, with some overlap. There were also 50+ feeding on the south side, so they are going off in all directions. Many were in pairs, thus young are probably in the nests.	" "
3	" " " " "		-	400+	6-17	Flight rate over the main marsh, watching from the west, was 325/hr. There were many additional birds feeding to the south east in mown fields.	" "
3	" " " " "		-	3,608	6-22	Two dusk counts from the north end yielded 1149/hr and 2,459/hr, with most coming in from the south. A total of at least 3,608 entered the colony.	" "

Table 11, cont. Nesting Locations and Sightings of White-faced Ibis in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
3	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	900-1200	250+	6-23	By canoe over 250 Ibis were flushed off nests. A flight rate in the colony at 1640 yielded 784/hr. The mean number of young in six nests was 2.5. This is a huge colony!	This Study
4	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	898+	6-7	Flight rates were taken from two locations between 0950-1050, with rates of 898/hr & 337/hr. This was a rainy day, with arrivals about equal departures: 434 in & 464 out, with most birds heading to or from the east.	" "
4	" " " " "		-	462	6-11	Flights were about even coming and going from the main marsh, with the total of 462/hr, (0945-1045).	" "
4	" " " " "		-	3200+	6-24	A dusk count from 1956-2056 yielded 1492/hr and another from 2056-2126 yielded 1246/hr. Total into the colony was 2,738, and out = 524.	" "
4	" " " " "		500-1000	226+	6-24	A 0.5 mile transect was taken through the marsh with at least 50 possible nests spotted. Since this strip was no more than 10% of the colony, it is estimated that a minimum of 500 nests are here. A Biologist, Mark Fleming, said he estimated about 2,000 adults nest in this colony.	" "
4	" " " " "		-	244+	7-3	The young are flying now and creched. A flight rate at 1512 yielded 976/hr.	" "
5	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	4	6-8	A flight rate from McTucker Springs area at 0930 yielded only 4/hr.	" "
5	" " " " "		-	12	6-9	Seen flying down the bluffs toward ths Bottoms.	" "
5	" " " " "		-	44	6-11	McTucker Springs area = 44/hr.	" "

Table 11, cont. Nesting Locations and Sightings of White-faced Ibis in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
5	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	95	6-15	Between 1845-1945 the flight rate was 95/hr in the McTucker Springs area, with 70 in & 25 out.	This Study
5	" " " " "		-	30	6-17	These Ibis flew over as I was paddling a canoe off the Bottoms.	" "
5	" " " " "		-	34	7-2	Small groups were coming & going in the McTucker Springs area.	" "
5	" " " " "		40-60	112	7-11	Counted foraging around the north edge of the reservoir.	" "
5	" " " " "		-	5	7-14	Over Siphon Road on the s.e. side of the reservoir.	" "
5	" " " " "		-	51	7-19	Between 0800-1000 these birds were seen making feeding flights into & from the Bottoms, with a mean flock size of 4.2 birds.	" "
6	Mud Lake WMA	43.53-112.25 (T7N,R37E,S34)	-	50	6-11	From the north dike road the flight rate was 50/hr (1015-1115).	" "
6	" " " " "		-	594	6-14	Flight rate from the s. side was 594/hr, and from a canoe in the mid-marsh it was 526/hr. About 307 Ibis left the marsh to the s.e. and 287 returned between 1110-1240.	" "
6	" " " " "		-	361	6-15	This is from the south dike again, which misses those heading n.e., but it was a flight rate of 361/hr.	" "
6	" " " " "		-	758	6-25	A dusk count from west of the tower area on the n. shore revealed most of the Ibis coming in from the west. Another count at 2015-2125 from the tower area yielded 173 coming in and 5 going out.	" "
6	" " " " "		-	900+	7-9	In the west marsh there are creching young Ibis, with many running across the rushes. Flight rates were taken at the same time, with 897/hr. (1104-1204).	" "

Table 11, cont. Nesting Locations and Sightings of White-faced Ibis in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
6	Mud Lake WMA	43.53-112.25 (T7N,R37E,S34)	400-800	400	7-21	At least 400 were feeding in one plowed field s.e. of the lake, and flocks of 35-50 were flying back toward the colony.	This Study
7	Bear Lake NWR	42.11-111.19 (T14S,R44E,S34)	600	1700	7-8	A huge colony on Mud Lake, about 1500 young being produced.	R. Sjostrom
7	" " "	" "	-	61	6-19	Many Ibis seem to be moving n. off the refuge to feed in fields.	This Study
7	" " "	" "	-	251	6-21	Three people counted at dusk to the n. & w. of the refuge. One flight rate was 146/hr, with 46 heading out at almost dark.	" "
7	" " "	" "	-	326	7-10	An observation on the east side about 0.5 miles s. of Dingle between 1050-1150 yielded a flight rate of 261/hr, with even numbers coming and going, and 65 Ibis in the nearby fields feeding.	" "
8	Camas NWR	43.54-112.16 (T7N,R36E,S18)	-	275	6-16	Adults flushed off new nests, some with 4 eggs, others w/2, only 20% of the nests had eggs.	G. Deutcher
8	" "	" "	-	15	6-30	A separate small colony is on Toomey Pond.	" "
8	" "	" " S17	-	256	6-29	Two flight rates at the colony in the Center Marsh between 1840 -1915 yielded 136/hr & 120/hr coming & going. Several Ibis were carrying nest material, others were going out to forage singly.	This Study
8	" "	" " S18	10-15	250	7-5	About 20 Ibis flew into Toomey Pond during a canoe visit. One nest had 3 eggs. A foraging group of 250 were near Ray's Lake.	" "

Table 11, cont. Nesting Locations and Sightings of White-faced Ibis in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
8	Camas NWR	43.54-112.16 (T7N,R36E,S17)	100-125	160+	7-8	I canoed into the Center Marsh and found 13 nests w/ a mean of 3.0 eggs. Several were still empty and 6 had newly hatched young. Others had chicks nearly full grown.	This Study
8	" "	" " S17	-	15	8-4	Young are about ready to fledge on Toomey Pond, with 15 Ibis about.	" "
9	Minidoka NWR	42.40-113.20 (T9S,R26E,S26)	-	50	7-5	A flock of 50 flew down river at Coldwateer Creek, and out of sight to the west.	" "
10	Hawkins Reservoir	42.35-112.25 (T11S,R36E,S35)	-	9	6-7	Feeding in a field near the pond.	" "
11	Chester Hill Res.	42.43-111.45 (T8S,R41E,S25)	-	8	8-3	Flying in from n., foraging.	" "
12	Blackfoot Res.	42.56-111.37 (T6S,R41E,S11)	-	20+	6-19	Seen nearby - foraging group?	L. Hlavaty

Total Range of Ibis Nests = 3,280-4,650

CALIFORNIA GULL
Larus californicus
STATUS: No current listing

Distribution and Movements
The California Gull breeds in the interior of North America from Canada south into Montana, northwest Utah, northeast Nevada, south-central Oregon, and southern Washington. Populations in the West have increased in this century, possibly due to increased food resources in the form of garbage dumps and irrigated fields, as well as reduced human pressure from shooting and egg collecting (Conover 1983, Conover et al. 1979). Increased use of covered landfills may therefore have an effect on this species. In Idaho, breeding is restricted to the Snake River Plain, particularly the eastern portion. California Gulls winter along the Pacific coast, parts of California and along the southern portion of the Colorado River, at the Great Salt Lake, and in the Gulf of Mexico. Idaho birds follow the Snake River downstream to the ocean during fall migration (Trost 1985).

Habitat and Nesting
The California Gull breeds on islands in freshwater or alkaline lakes, as well as in marshes. Nests are 14-18 inches (35-45cm) across, and are constructed on bare ground from rubbish, dead weeds, straw, and grass. Clutch sizes vary from 1-5 eggs; 2-3 eggs is the most common size.

In open areas of the West, these gulls feed in fields, where they prey on crickets, grasshoppers, cutworms, and mice. They also eat dead fish and garbage, and may eat the eggs of other bird species, including the American White Pelican, Double-crested Cormorant, and various waterfowl. When feeding on water, California Gulls usually remain on the surface, but may plunge-dive after fish.

Survey Results
Six of the seven colonies of California Gull reported in the 1984 survey (Trost 1985) are still active; only the colony at Mud Lake WMA is no longer active. We added the large colony on Smith Island of Deer Flat NWR, which contains between 7,000 and 7,500 nests (thanks to Wayne Stanley and Andy Ogden). There appears to be a three-fold increase in numbers since 1984. This increase is probably real, and not simply an artifact of increased survey effort, because it was obvious that several of the colonies had expanded to cover nearly an entire island where in 1984 they had covered only half. Now that many communities are covering their garbage disposal areas, it will be interesting to see if gull numbers remain high.

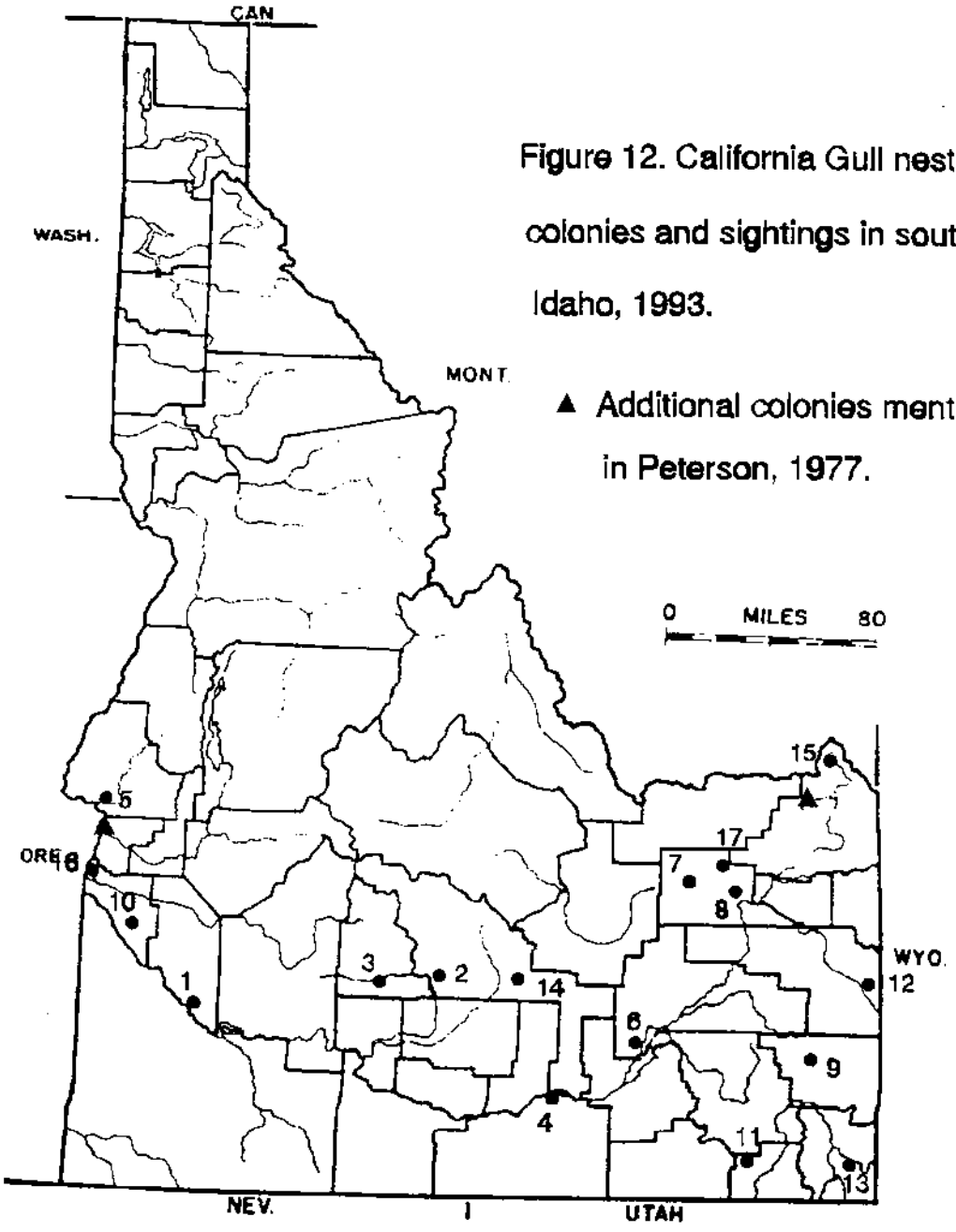

Figure 12. California Gull nesting colonies and sightings in southern Idaho, 1993.

▲ Additional colonies mentioned in Peterson, 1977.

Table 12. Nesting Locations and Sightings of California Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Ted Trueblood WMA	43.00-116.07 (T5S,R3E,S9)	-	100	5-28	Colony is in a WMA and will probably be harrassed by the land managers.	J. Doremus
1	" " "	" "	120-200	250+	6-10	Three 5x5 m plots set out, with 9, 12, & 13 nests in them. There were 20 chicks and 3 eggs in the 3 plots combined. The colony is on 3 islands.	This Study
2	Magic Reservoir	43.15-114.22 (T2S,R17E,S13)	1500-2500	3,000+	6-13	The colony is on the west side, about a mile from the dam. It is on a peninsula with low water this year, and vulnerable to coyote & human disturbance.	" "
3	Mormon Reservoir	43.15-114.50 (T2S,R14E,S19)	7500-8500	10,000	6-13	The colony is on an island in the s.w. arm, and occupies about half the island.	" "
4	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	450-500	255+	6-22	There are 25 gulls on the small island to the west and 230 on Gull Island. There seems to be space limitations for the gulls.	" "
4	" "	" "	-	50+	7-5	The young are flying now, with many exploring the lake nearby.	" "
5	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	-	10000+	5-26	Gulls are on Smith Island in the Snake River Sector.	W. Stanley
5	" " "	" "	7000-7500	4000+	6-30	About 3000 juveniles were running around. Nest densities in 5x5 m plots were 11, 9, 7, 9, 4, & 11 (mean = 8.5/plot). From an aerial photo with a 1:6000 scale we estimate the colony size about 21,600 square meters, which means about 864 5x5 m plots. Thus there are 7,344 nests.	This Study
6	American Falls Res.	42.55-112.46 (T5S,R31E,S36)	-	9	6-8	McTucker Springs area, one hour count of gulls.	" "

Table 12, cont. Nesting Locations and Sightings of California Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
6	American Falls Res.	42.55-112.46 (T5S,R31E,S36)	-	10	7-2	At the edge of the Bottoms there were several gulls near the cormorant nests.	This Study
6	" " " " "		8000-9000	200+	7-14	The gulls have mostly left the colony but we counted nest depressions in 5 fx5 m plots, with a mean of 7.2/plot. It is estimated that there are 1200 such plots in the gull nesting area, thus about 8640 nests.	" "
7	Mud Lake WMA	43.53-112.23 (T7N,R34E,S34)	-	1	6-12	One gull seen along the n. side.	" "
7	" " "	" "	-	5	6-25	Near the cormorant colony on the n. side, foraging.	" "
7	" " "	" "	-	6	7-21	Sitting on the marsh.	" "
8	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	7	6-7	Over the east marsh, foraging.	" "
8	" " "	" "	-	2	6-11	Near the Ibis colony, foraging.	" "
8	" " "	" "	-	50	7-3	Sitting on a spoil island, no sign of juveniles.	" "
9	Blackfoot Res.	42.48-111.38 (T6S,R41E,S13)	-	2000+	6-19	There are hundreds of gulls nesting on Gull Island.	L. Hlavaty
9	" "	" "	7000-8000	650+	7-4	The colony has expanded to take up most of Gull Island now.	This Study
10	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	-	170	6-3	There are 2-3000 gulls using the refuge on Lake Lowell all summer, but apparently not nesting.	W. Stanley
11	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	-	1	6-5	One bird on s. Twin Lakes.	This Study
11	" " "	" "	-	50	6-22	Foraging near the Ibis colony.	" "
12	Palisades Res.	43.08-111.03 (T3S,R46E,S36)	-	65	6-18	Roosting on the new dikes at the s. end of the lake.	" "
13	Bear Lake WMA	42.11-111.19 (T14S,R44E,S34)	10	30	7-8	There is a small colony on w. Rainbow Is., w/ about 15 young produced.	R. Sjostrom
13	" " "	" "	-	2	6-19	Only 2 could be identified.	This Study

Table 12, cont. Nesting Locations and Sightings of California Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
14	Carey Marsh WMA	43.20-113.55 (T1S,R21E,S14)	-	25	6-9	Resting on s.w.shore, not nesting	This Study
15	Henry's Lake	44.45-111.20 (T16N,R43E,S31)	-	18	7-17	Resting by the boat access on the s. shore, not nesting.	" "
16	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	2	5-30	Flying overhead, no nesting.	" "
17	Camas NWR	43.54-112.16 (T7N,R36E,S18)	-	present	6-16	Not known to nest here.	G. Deutcher
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	present	6-29	Not known to nest here.	J. Reynolds

Total range of California Gull Nests = 24,155-36,210

RING-BILLED GULL
Larus delawarensis
STATUS: No current listing

Distribution and Movements
In the West, the Ring-billed Gull breeds from Canada south into Montana and Wyoming, as well as in portions of eastern Oregon and eastern Washington and in the Snake River Plain area of Idaho. Populations in the West have increased in this century, possibly due to increased foraging areas in the form of irrigated fields, as well as reduced human pressure from shooting and egg collecting (Conover 1983, Conover et al. 1979). Ring-billed Gulls winter along the Pacific coast and parts of interior California, through southern Arizona and New Mexico, and southward into Mexico. Some birds also overwinter in Idaho. Wintering habitat is generally along large lakes and rivers.

Habitat and Nesting
Ring-billed Gulls feed in diverse habitats, preying on worms, grubs, and insects from freshly plowed fields, grasshoppers caught in flight, and small rodents captured from fields. They take fishes from the shallow edges of large bodies of water, and also eat the eggs of cormorants and other species.

These gulls nest in colonies on islands or along the shore of freshwater lakes. Nesting is often in association with terns, cormorants, and other gulls; their tightly-packed colonies are often surrounded by the more widely spaced California Gulls. Clutch sizes range from 1-7 eggs, but 2-4 eggs is the most common size.

Survey Results
Most of the traditional Ring-billed Gull colonies surveyed in 1984 remain active, but there seems to be a slight downward trend in numbers of nests. The largest decrease in numbers was at Magic Reservoir, which apparently did not fill completely after the drought. This left the traditional colony along the northwest shore connected to the mainland, making both the California and Ring-billed Gull colonies vulnerable to predation and to human disturbance. Otherwise, colonies of Ring-billed gulls appear to have remained largely stable since the 1984 survey.

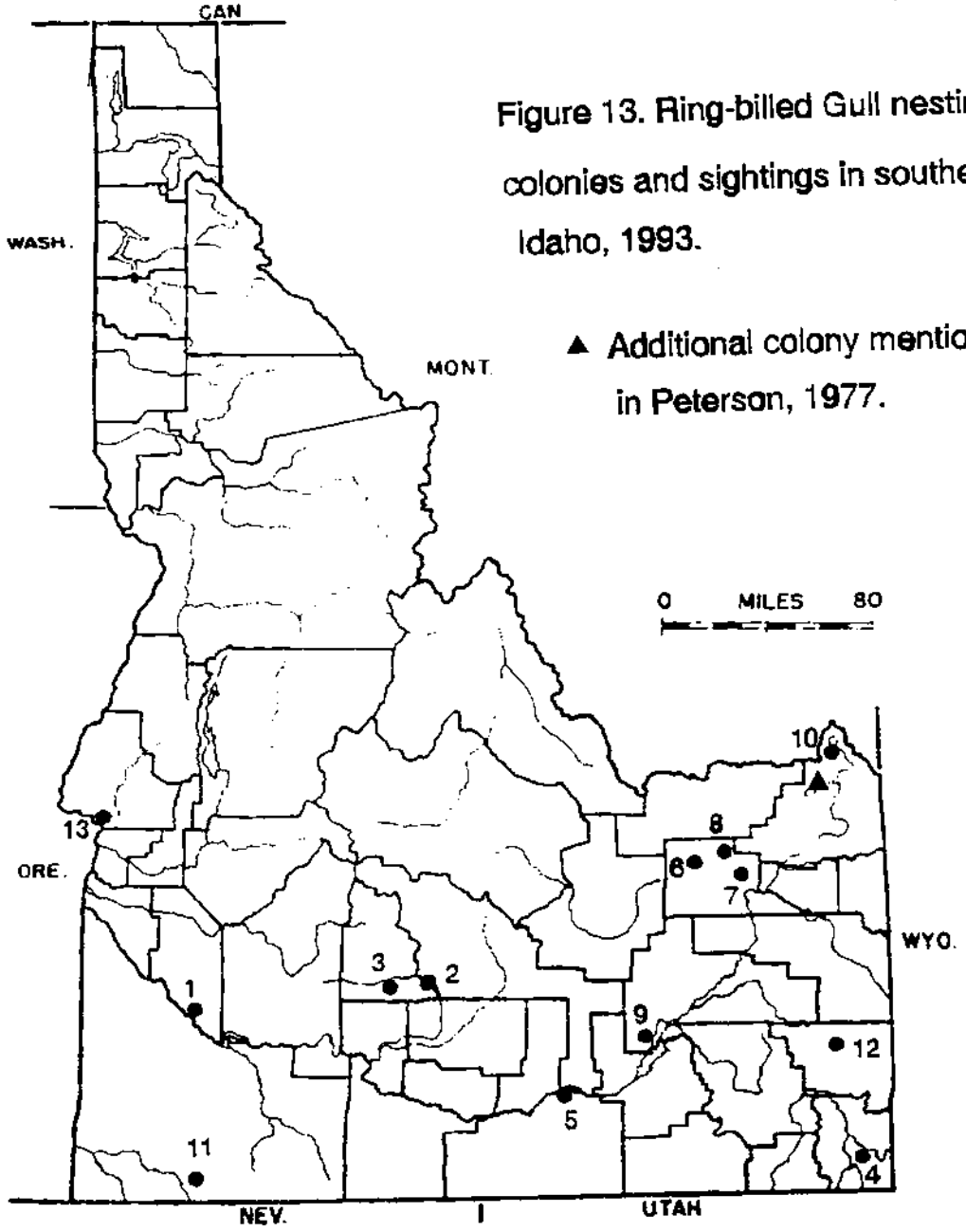

Figure 13. Ring-billed Gull nesting colonies and sightings in southern Idaho, 1993.

▲ Additional colony mentioned in Peterson, 1977.

Table 13. Nesting Locations and Sightings of Ring-billed Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Ted Trueblood WMA	43.00-116.07 (T5S,R3E,S9)	375-425	900	5-28	Gulls nesting in WMA, subject to harrassment by managers.	J. Doremus
1	" " "	" "	-	-	6-10	Colony on 3 islands, on Dorsey Butte topo.	This Study
2	Magic Reservoir	43.15-114.22 (T2S,R17E,S36)	200-250	345	6-13	The colony is on a peninsula, with Ring-bills at the neck, Calif. gulls further out. Nest density 25.5 nests per 5x5 m plot, 9 plots.	" "
3	Mormon Reservoir	43.15-114.50 (T2S,R14E,S29)	3500-3800	300+	6-13	Colony at the w. tip of the island with Calif. gulls in center. Nest density 21 nests/5x5 m plot, about 175 plots.	" "
4	Bear Lake NWR	42.11-111.19 (T14S,R44E,S34)	-	4	6-21	Four Ring-bills were near the ibis colony, not recorded here by R. Sjostrom.	" "
5	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	?	1	6-22	An adult was calling in a territorial fashion from the edge of Gull Island. They may well nest here now.	" "
6	Mud Lake WMA	43.53-112.23 (T7N,R34E,S34)	-	3	6-25	Watching from the tower near the cormorant colony. Gulls foraging here.	" "
6	" " "	" "	-	3	7-21	Sitting on the exposed marsh.	" "
7	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	20-25	40	7-3	Cicks are running together, on n. end of main marsh, with F. Gulls & Ibis.	" "
8	Camas NWR	43.54-112.16 (T7N,R36E,S17)	-	9	7-5	Sitting on Sandhole Lake, not nesting.	" "
9	American Falls Res.	42.55-112.46 (T5S,R31E,S36)	2000-2500	75	6-8	Nesting in denser vegitation on n. side 21.5 nests per 5x5 m plot, about 100 in colony area.	" "
10	Henry's Lake	44.45-111.20 (T16N,R21E,S31)	-	35+	7-17	Resting and feeding, no nests.	" "
11	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S11)	-	30	5-28	Sub-adult gulls resting on Mountain View Reservoir.	" "
12	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	?	-	5-26	On Smith Island, no Ring-bills seen, may nest elsewhere nearby.	W. Stanley

Table 13. Nesting Locations and Sightings of Ring-billed Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
-	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	-	2-3000	5-26	Present from April to October, but not known to breed.	W. Stanley
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	-	6-29	Present on refuge, but not known to breed.	J. Reynolds

Total Range of Ring-billed Gull Nests = 6,095-7,000

FRANKLIN'S GULL
Larus pipixcan
STATUS: No current listing

Distribution and Movements
In the West, Franklin's Gulls breed from Canada south into Montana, and locally in Oregon, Nevada, Utah, and Idaho, where they are found on a portion of the Snake River Plain in the southeast part of the state. They winter along the Pacific coast from Guatemala southward in Central and South America.

Habitat and Nesting
Franklin's gulls feed in fields, where they prey on grasshoppers, crickets, cutworms, and grubs. They catch dragonflies and other insects in flight, and hover over sloughs and small ponds to take small fishes and aquatic insects.

Nesting takes place among marsh reeds. Nests can be either floating or attached to the marsh vegetation, and are constructed of dead marsh plants. Clutch sizes vary from 2-4 eggs, with three eggs the most common size. These gulls nest in colonies as large as 15,000-20,000 birds.

Survey Results
Franklin's Gull populations have increased during the interval from 1984 to 1993, although total nest numbers are lower (approximately 9,000 in 1993 vs. 17,000 in 1984). In this survey, we lowered estimated nest numbers at Gray's Lake NWR because we visited the colony and obtained an actual idea of the colony size. Also, the highest observed flight rate of 3,230 birds/hour on June 26 probably captured the evening feeding flight of a good portion of the breeding colony.

Fears expressed by Trost (1985) about the effect of local pesticide use on reproductive capacity of this species have been allayed. Many young apparently fledged from the colony at Gray's Lake. Similarly, the colonies at Mud Lake WMA and Oxford Slough WPA have expanded. Soon after the young fledge, their parents lead them on foraging flights, and on July 17 we found young hawking insects over Henry's Lake, which is at least 80 miles from the nearest colony.

We found this a very difficult species to census. Adults nest in inaccessible locations where an airboat is best used to measure the size of the colony. The next best method of estimating colony size is the use of a canoe. Colony measurements obtained by these methods, coupled with flight rates, gave us some confidence in our estimates of nest numbers. Nonetheless, flight rates can be deceiving unless the observer is underneath the foraging flight path of this highly social gull. At Market Lake WMA we obtained a flight rate of 567 birds/hour over the east side on June 7th, but on June 11th observed only one bird. Such large differences in flight rates reflect changes in social behavior.

To obtain an adequate measure of Franklin's Gull numbers, we recommend driving to different locations until finding an observing location where gulls can be seen leaving and entering the colony, and making counts from this point. An alternate strategy would be an aerial survey of the colonies early in the season during incubation. On this survey, we flew too late (July 7th), and as a result were unable to count nests, even when using a microscope to examine photographic slides of the colony. However, during incubation the light color of the adults should be apparent. Consequently we recommend late May or early June as the best time frame for aerial observations.

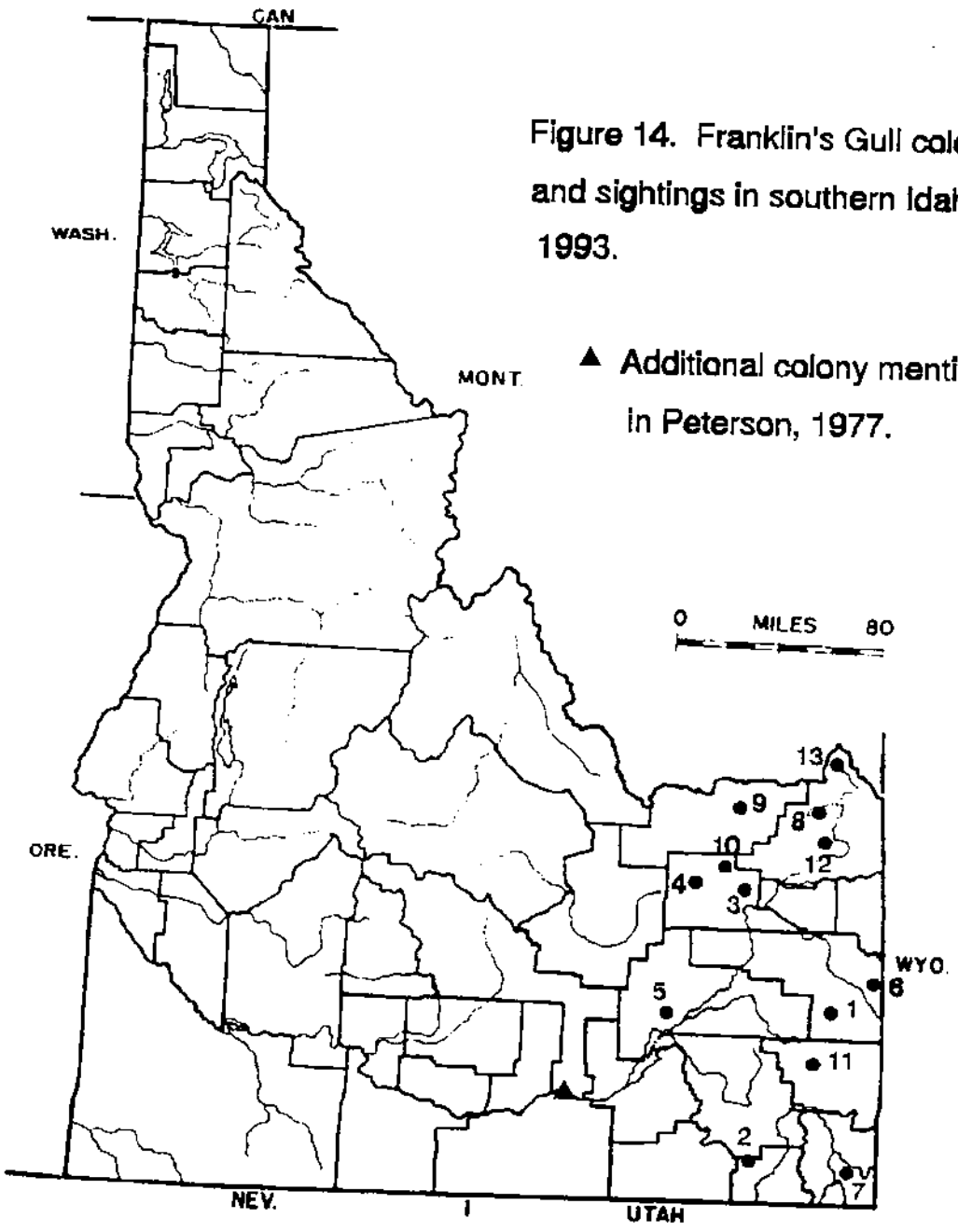

Figure 14. Franklin's Gull colonies and sightings in southern Idaho, 1993.

▲ Additional colony mentioned in Peterson, 1977.

Table 14. Nesting Locations and Sightings of Franklin's Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Gray's Lake NWR	43.01-111.27 (T3S,R43E,S4)	5000-6000	300+	5-26	We went through the colony in an airboat, counting 91 nests Clutch sizes were: 60 w/3, 22 w/2, 9 w/1 egg (mean = 2.56/nest). S. Bouffard estimates 10,000 gulls nesting here.	This Study
1	" " "	" "	-	3230	6-26	A flight rate was taken from the w. side, between 2015-2115, yielding 3230/hr. Most heading away to the west. Between 1745-1805 only 25 gulls were counted at the n. end, by Mann Rd. also, between 2015-2125 only 15 gulls were seen Hwy 34 on s.e. part of refuge.	" "
2	Oxford Slough WPA	42.15-112.02 (T13S,R36E,S35)	-	150+	6-5	These were feeding to the s. & e. of the refuge, many more were flying low over the marsh. A large colony.	" "
2	" " "	" "	1500-2500	300+	6-23	There are several thousand gulls nesting here, but it is difficult to count. Chicks are jumping off nests, so the Fledging size is 5 w/3, 3 w/2 chicks (mean = 2.62/nest).	" "
3	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	567	6-7	Flight rates were taken at two places: there were 147/hr between 0950-1050 on the east side and 567/hr near the main marsh.	" "
3	" " "	" "	-	1	6-11	Only one seen on east side between 0945-1045.	" "
3	" " "	" "	800-1200	214+	7-3	About 100 constantly mobbing on a transect along dike on the main marsh. A flight rate in & out was 856/hr between 1255-1545.	" "
4	Mud Lake WMA	43.53-112.25 (T7N,R37E,S35)	-	200	6-12	On n. side, by front gate.	" "
4	" " "	" "	-	200+	6-14	Watching from s. dike.	" "

Table 14, cont. Nesting Locations and Sightings of Franklin's Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
4	Mud Lake WMA	43.53-112.25 (T7N,R37E,S34)	-	218	6-25	Flight rate was 218/hr between 2015-2115 by tower, along n. side.	This Study
4	" " "	" "	-	300+	7-9	This is a large colony,all in deep water in the west marsh. Many young circled with their parents as I canoed throught he colony.	" "
4	" " "	" "	600-800	2	7-21	No adults were seen today, only 2 juveniles.	" "
5	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	80+	6-15	On the edge, resting, near McTucker Springs area.	" "
5	" " "	" "	-	45+	6-17	Along same edge at McTucker Spr.	" "
5	" " "	" "	-	17	7-2	Two groups of 10 & 7 adults were foraging at the mouth of the Snake R.	" "
5	" " "	" "	-	80	7-25	Gathering near the silo, at the dam.	" "
6	Palisades Res.	43.08-111.03 (T3S,R46E,S36)	-	36	6-19	Flying over the village & res.	" "
7	Bear Lake NWR	42.11-111.19 (T14S,R44E,S34)	350-400	800	7-8	Colony on the edge of Mud Lake, about 300 young produced.	R. Sjostrom
8	Island Park Res.	44.25-111.35 (T13N,R42E,S36)	-	6	6-29	Over the Kilgore Rd. to Res.	This Study
8	" " "	" "	-	70	7-17	Over 50 gulls were hawking insects over the reservoir. No nesting.	" "
8	" " "	" "	-	30+	8-4	Over 30 gulls with young of the year feeding over the reservoir.	" "
9	Kilgore-Spencer Rd.	44.30-112.20 (T13N,R37E,S24)	-	6	6-29	Over Rd. towards Duboise.	" "
10	Camas NWR	43.54-112.16 (T7N,R36E,S18)	-	present	6-16	This species formerly nested on the refuge, but not now.	G. Deutcher
10	" "	" "	-	60+	6-29	Two flocks over toward Mud Lake.	This Study
10	" "	" "	-	75+	8-4	Sitting on Toomey Pond, with young of the year.	" "
11	Blackfoot Res.	42.48-111.38. (T6S,R41E,S11)	-	100's	6-19	Maybe coming from Gray's Lake, but 100's here.	L. Hlavaty
11	" "	" "	-	15+	7-4	Feeding over the reservoir.	This Study

Table 14, cont. Nesting Locations and Sightings of Franklin's Gulls in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
12	Harriman St. Park	42.40-111.30 (T14N,R43E,S27)	-	1	7-16	One gull feeding over Silver Lake.	This Study
13	Henry's Lake	44.45-111.20 (T16N,R43E,S31)	-	75	7-17	Adults with young feeding over lake, hawking insects.	" "
-	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	-	1-2,000	5-26	Present in large numbers in migration, no nesting.	W. Stanley
-	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	-	1000+	5-26	Present in large numbers in migration, no nesting.	" "
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	-	6-29	Present on refuge, but not known to breed.	J. Reynolds

Total Range of Franklin's Gulls' nests = 8,250-10,900

BLACK TERN
Chlidonias niger
STATUS: Federal Category 2 species (listing as threatened or endangered may be appropriate but conclusive data not currently available). Idaho Conservation Data Center rank is G4/S2 (not rare and apparently secure globally, but still cause for long-term concern; imperiled in Idaho).

Distribution and Movements
In the northwest, the Black Tern breeds from Canada southward to northern Nevada and northern Utah, and from the Cascade Range eastward. In Idaho, breeding birds are found from the north limit of the Snake River Plain southward, and in the northern panhandle. The Black Tern winters in Central and South America.

Habitat and Nesting
Black Terns eat mostly insects, as opposed to other terns, which are largely fish-eaters. They hover over meadows or grassy marshes while hunting insects in mid-air, or pick insects such as dragonflies or grasshoppers from tall grasses. Less frequently, they feed over open water by diving for fishes and crustaceans, or may pick food from the water with their bills.

Nesting is in small, loose colonies in marshy lake areas. Nests are built on muskrat houses or floating clumps of dead plants. the nest itself is a shallow cup of canes or reeds which holds the eggs just above water level. Clutch size varies from 2-4 eggs with three being the most common number.

Survey Results
Black Tern nesting areas are scattered over the marshes of eastern Idaho and perhaps the panhandle. Despite their low numbers, the overall population appears to be remaining stable. We searched unsuccessfully for these terns at both Minidoka NWR and at Mesa Falls Marsh, where they were found in 1984, but found a new colony at Craig Lake at the southern end of Blackfoot Reservoir. We did not enter any nesting colonies, but instead counted the adults (which are easily seen due to the fact that they spend considerable time in the air) and later on the fledged young birds. Through repeated visits to the marshes we obtained a sense of the adult numbers, as well as observations of them carrying prey back to the nests. Overall numbers are low, but the population we surveyed appears healthy.

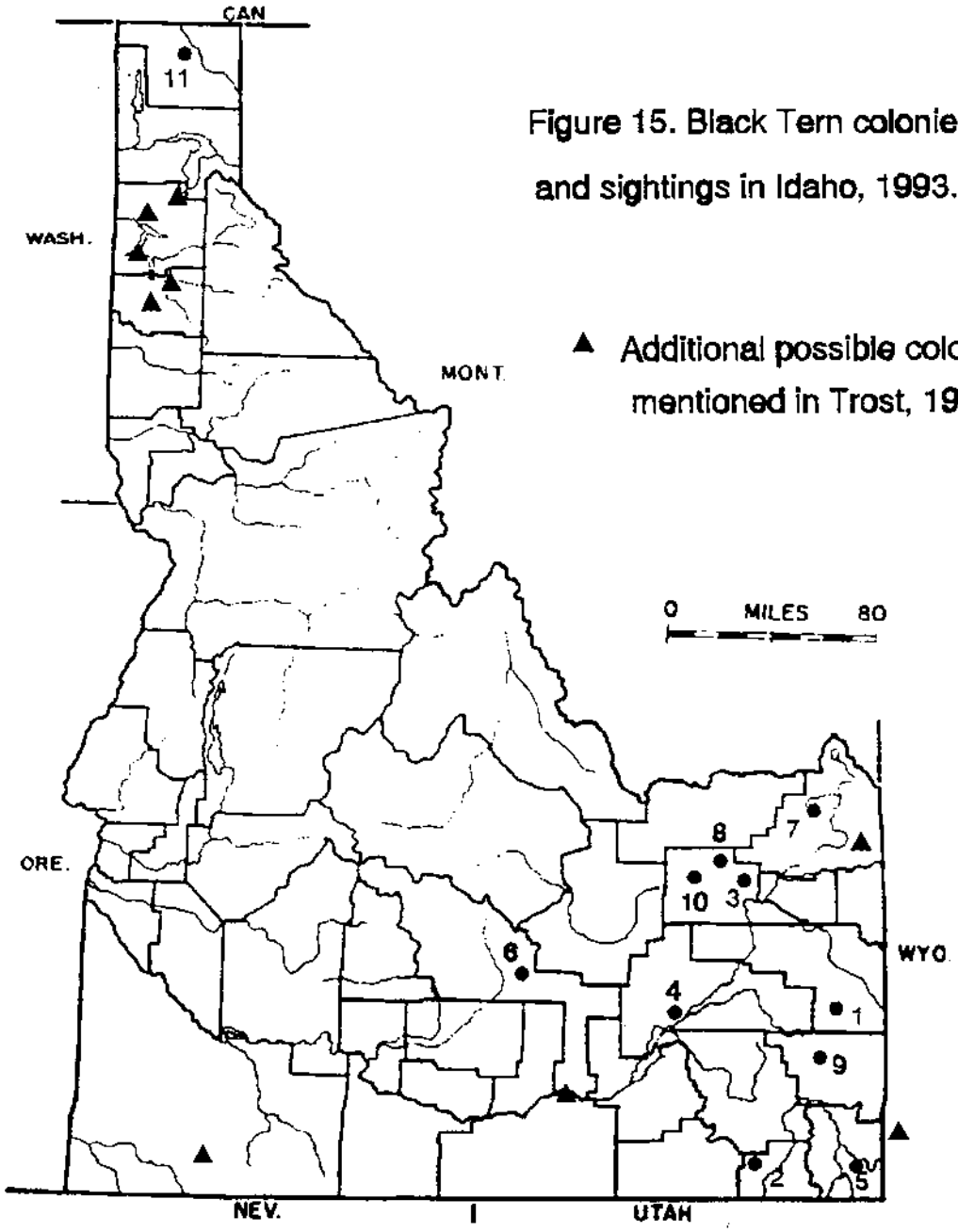

Figure 15. Black Tern colonies and sightings in Idaho, 1993.

▲ Additional possible colonies mentioned in Trost, 1984.

Table 15. Nesting Locations and Sightings of Black Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Gray's Lake NWR	43.01-111.27 (T3S,R43E,S4)	-	21	5-26	Not nesting yet, n. of Bear Island. S. Bouffard said that they will nest there.	This Study
1	" " "	" "	6-12	2	6-26	Flying over open water on the w. side.	" "
2	Oxford Slough WPA	42.15-112.02 (T13S,R38E,S35)	-	3	6-5	Feeding over the reduced Oxford Pond, about a mile s.w of the slough.	" "
2	" " "	" "	-	8	6-5	At the Downey Slough, but not breeding here, as absent on 6-23. These might have been a foraging flock from Oxford Slough.	" "
2	" " "	" "	7-10	14	6-23	I canoed through the entire ibis colony and these terns were present the whole way. They were present at the n. end at put-in, and also s. of the ibis.	" "
3	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	44	6-7	On the east marsh there were 16 flying s., and by the main marsh canal there were 28, foraging.	" "
3	" " "	" "	-	2	6-11	On e. side, foraging.	" "
3	" " "	" "	-	12-13	6-24	Flying over the ibis colony and along whole road north.	" "
3	" " "	" "	-	6-8	7-3	One bird with a fish in from the south. They seem to be concentrated west of the road, across from the ibis colony. Probable nesting site.	" "
3	" " "	" "	6-12	6	7-21	Feeding over the East Spring Marsh, 3 are young of the year, so they did reproduce here successfully.	" "
4	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	1	6-8	One hour watch in the McTucker Spring area yielded only one tern.	" "
4	" " "	" "	-	10	7-19	Feeding in reservoir out from the Snake River entrance.	" "

Table 15, cont. Nesting Locations and Sightings of Black Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
4	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	4-5?	50+	7-27	Feeding on theb Springfield Ponds, with 3 young of the year. The nesting colony was probably on the Fort Hall Bottoms.	This Study
5	Bear Lake NWR	42.11-111.19 (T14S,R44E,S34)	-	60+	7-8	Nesting not observed, but they present all summer in the marsh east of the the Outlet Canal for several miles.	R. Sjostrom
5	" " "	" "	-	1	6-19	One tern flying n. of the Paris - Dingle Road.	This Study
5	" " "	" "	-	4	7-10	In the area of the Salt Meadow Unit these terns were foraging.	" "
6	Carey Lake WMA	43.20-113.55 (T1S,R21E,S14)	8-10?	20+	6-9	Foraging over open water, nesting the cattails in the middle?	" "
7	Harriman St. Pk.	44.20-111.10 (T12N,R41E,S27)	-	6-8	6-29	Feeding over Silver Lake, but on 7-16 there were no terns here.	
8	Camas NWR	43.54-112.16 (T7N,R36E,S16)	-	present	6-16	These terns are known to have nested here previously.	G. Deutcher
8	" "	" "	-	8+	6-29	Foraging over open water in the w. Center Marsh area.	This Study
8	" "	" "	-	3	7-5	Foraging just n. of Two-way Pond	" "
8	" "	" "	4-6?	9	7-8	Feeding over Toomey Pond. I think they are nesting here.	" "
8	" "	" "	-	2	7-21	Feeding over Center Marsh area.	" "
9	Blackfoot Res.	42.48-111.38 (T6S,R41E,S11)	-	100+	6-19	Maybe comiing from Gray's Lake NWR, but many feeding over the reservoir.	L. Hlavaty
9	" "	" "	4-6?	11	7-4	At Craig Lake, just west of Dike Lake at the south end of the reservoir. I think they are nesting here.	This Study
10	Mud Lake WMA	43.47-112.23 (T7N,R34E,S35)	-	27	8-4	Foraging over open water, with several young birds, from Camas?	" "
11	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	25-30	-	6-29	They failed to nest the last two seasons, but are this year.	J. Reynolds

Table 15, cont. Nesting Locations and Sightings of Black Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
-	Deer Flat NWR, Snake River	44,12-117.05 (T7N,R5W,S22)	-	<100	5-26	They are present on the Snake River Sector of this refuge, but not known to nest.	W. Stanley

Total Range of Black Tern Nests = 68-91

CASPIAN TERN
Sternia caspia
STATUS: No current listing

Distribution and Movements
In the West, the Caspian Tern breeds locally in Washington, Oregon, California, Nevada, Utah, Wyoming, Montana, and Idaho. Breeding in Idaho is on the Snake River Plain. These terns winter from the central California coast southward, and in the Gulf of Mexico. Migration is along the coast and along large interior rivers.

Caspian Tern populations in Idaho were unsuccessful in the late 1970's, probably as a result of pesticide contamination, but populations appeared to be recovering in the early 1980's (Taylor 1990, Trost 1985). They are often shot near trout hatcheries because of their habit of eating fingerlings; given the small number of these terns in Idaho, protection from this shooting is recommended.

Habitat and Nesting
Caspian Terns hunt over open water, diving completely under the surface after their prey. Their food is largely fish, including suckers and trout. They may rob other seabirds of their food, and may eat the eggs or young of gulls and other terns.

These terns nest in single pairs, small groups, or large colonies near colonies of other terns or gulls, and their nests are found in association with gull colonies, either on the edge of the colony or, less frequently, in the central portion. Nesting habitat is generally islands or islets in lakes, but they also nest in marshes in the Klamath region of Oregon. Nests are bare ground on rocky islands or shallow scrapes on sandy islands; scrapes may be lined with grasses, seaweeds, or mosses. Nests in marshes are constructed of floating plants. The colonies are vulnerable to human disturbance. Clutch size varies from 1-4 eggs; 2-3 eggs is the most common size.

Survey Results
The number of Caspian Tern nests has remained remarkably stable since the last survey in 1984. Numbers were up at Mormon Reservoir and Blackfoot Reservoir, but down at Magic Reservoir, where low water has made the gull and tern colonies vulnerable to predation. We had no reports of these terns from Bear Lake NWR, where there were 10-15 nests in 1984, and observed no Caspian Terns there during our surveys. We suspect that winter kills of fish in shallow water throughout eastern Idaho have had a negative impact on this species.

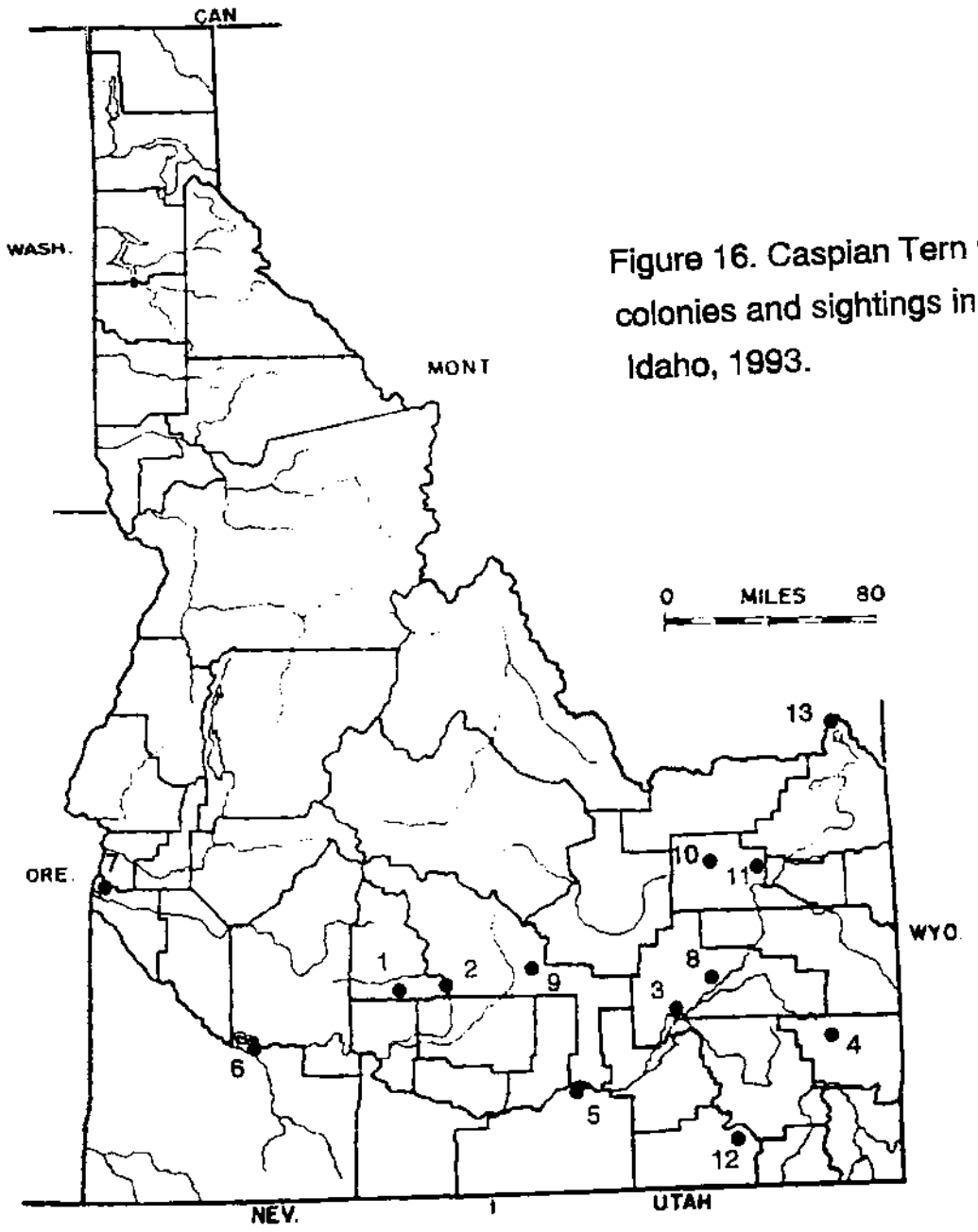

Figure 16. Caspian Tern nesting colonies and sightings in southern Idaho, 1993.

Table 16. Nesting Locations and Sightings of Caspian Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	Mormon Reservoir	43.15-114.50 (T2S,R14E,S19)	20-30	30+	6-13	At least 20 sitting on nests on the w. side of Gull Island, in the s.w. arm of the lake.	This Study
2	Magic Reservoir	43.15-114.22 (T2S,R17E,S13)	1-2	4	6-13	Sitting in gull colony, but on a peninsula, so vulnerable.	" "
3	American Falls Res.	42.55-112.46 (T5S,R31E,S36)	-	1	6-8	One hour watch at McTucker Springs, one foraging tern.	" "
3	" " "	" "	-	1	6-11	Same place, still one tern.	
3	" " "	" "	-	2	7-2	McTucker Springs area, at the entrance of the Snake R. onto the reservoir, foraging.	" "
3	" " "	" "	-	2	7-22	Resting by the silo, at the dam.	" "
3	" " "	" "	-	2	7-27	Foraging near Tilden Bridge.	" "
4	Blackfoot Res.	42.48-111.38 (T6S,R41E,S13)	-	4	6-19	On Gull Island.	L. Hlavaty
4	" "	" "	20-25	25+	7-4	Birds sitting on nests on the n. end of Gull Island.	This Study
5	Minidoka NWR	42.40-113.20 (T9S,R26E,S5)	-	2	6-22	Sitting on small rocky island to w. of Gull Island. Adult pair.	" "
5	" "	" "	-	2	6-24	Again 2 birds near Gull Is. at dawn.	" "
5	" "	" "	-	3	7-5	Two terns at Raft River and one at Gull Island. All adults.	" "
5	" "	" "	1-2	4	8-19	Four terns flew over Gull Island, mobbing us as we counted nests of pelicans & cormorants. Adults.	" "
6	C. J. Strike Res.	52.50-115.45 (T6S,R6E,S5)	-	2	5-28	Two terns foraging by the bridge at Hwy 51. Adult pair.	" "
7	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	2	5-30	Foraging up & down the river. Adult pair.	" "
8	Snake River at Blackfoot	43.10-112.25 (T3S,R35E,S33)	-	2	6-7	Foraging adult over the river.	" "
8	" "	" "		1	7-11	Over the Snake near Riverton.	" "
9	Carey Lake WMA	43.20-113.55 (T1S,R21E,S14)	-	2	6-9	Resting on n.w. shore, no apparent breeding. Adults.	" "

Table 16, cont. Nesting Locations and Sightings of Caspian Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
10	Mud Lake WMA	43.53-112.23 (T7N,R34E,S34)	-	1	6-25	One seen from tower on n. side. Adult.	This Study
10	" " "	" "	-	4	7-21	Four terns resting on exposed mud, w/ gulls & pelicans. Adults.	" "
11	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	1	7-3	One tern over the main marsh. Adult.	" "
12	Devil Creek Res.	42.20-112.05 (T13S,R36E,S11)	-	2	6-7	Foraging adults, no nesting.	" "
13	Henry's Lake	44.45-111.20 (T16N,R43E,S31)	-	5	7-17	Resting with gulls at the s. end, near the boad access. All adults.	" "
-	Deer Flat NWR, Lake Lowell	43.40-116.45 (T3N,R3W,S33)	-	100+	5-26	Present in large numbers at times, no known nesting.	W. Stanley
-	Deer Flat NWR, Snake River	44.12-117.05 (T7N,R5W,S22)	-	500+	5-26	Present in large numbers at times, no known nesting.	" "
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	-	6-29	Present on refuge, but not known to breed.	J. Reynolds

Total Range of Caspian Tern Nests = 42-59

FORSTER'S TERN
Sterna forsteri
STATUS: No current listing

Distribution and Movements
Forster's Terns breed locally in the northwest, with breeding areas in eastern Oregon and eastern Washington, northeast California and northern Nevada, the Great Salt Lake area of Utah, and the eastern Snake River Plain of Idaho. These terns winter from central California south to Baja California and in the Gulf of Mexico.

Habitat and Nesting
Forster's Terns hunt for fish by diving into open, shallow water. They also scoop dead frogs, insects, and fishes from the surface of the water, and catch dragonflies and caddisflies in the air over marshes. Breeding is in loose colonies in both salt and fresh water marshes; these terns may also be solitary breeders on islands in large rivers or near the edge of freshwater lakes. Nests may be a depression in mud or sand, lined with grasses or bits of seashell. Floating nests may be placed on mats of dead marsh vegetation, and nests can also be found on top of muskrat houses or in appropriated grebe nests. These nests are lined with reeds and grasses. Clutch size varies from 2-5; three is the most common number of eggs.

Survey Results
Despite intensive searches and repeated visits to known nesting areas, we found no evidence of reproduction by Forster's Terns on the Snake River Plain. The only colony with nests was at the Duck Valley Indian Reservation, which was a new location for this species.

After seven years of drought, we had a heavy snowfall during the winter of 1992-1993, and snow remained on the ground for several months. The resultant anoxic conditions in many shallow marshes in eastern Idaho led to extensive fish kills. This apparently occurred at Mud Lake and Market Lake WMA's and at Camas NWR. In addition, Idaho Fish and Game killed most of the fish in Island Park Reservoir during the fall of 1992.

We suspect that this lack of food may be responsible for the lack of observed reproduction in these terns. Isolated pairs may have produced young on islands in the Snake River, but we found no juvenile birds in July and August.

It is critical that we continue to gather information on this species in 1994. Perhaps refuge managers can be alerted to count Forster's terns this spring and make note of any nesting attempts. We would be willing to coordinate such an effort. We feel that it is vital to know whether the reproductive failure of these terns was only a one-year event, or whether it indicates a serious, long-term problem.

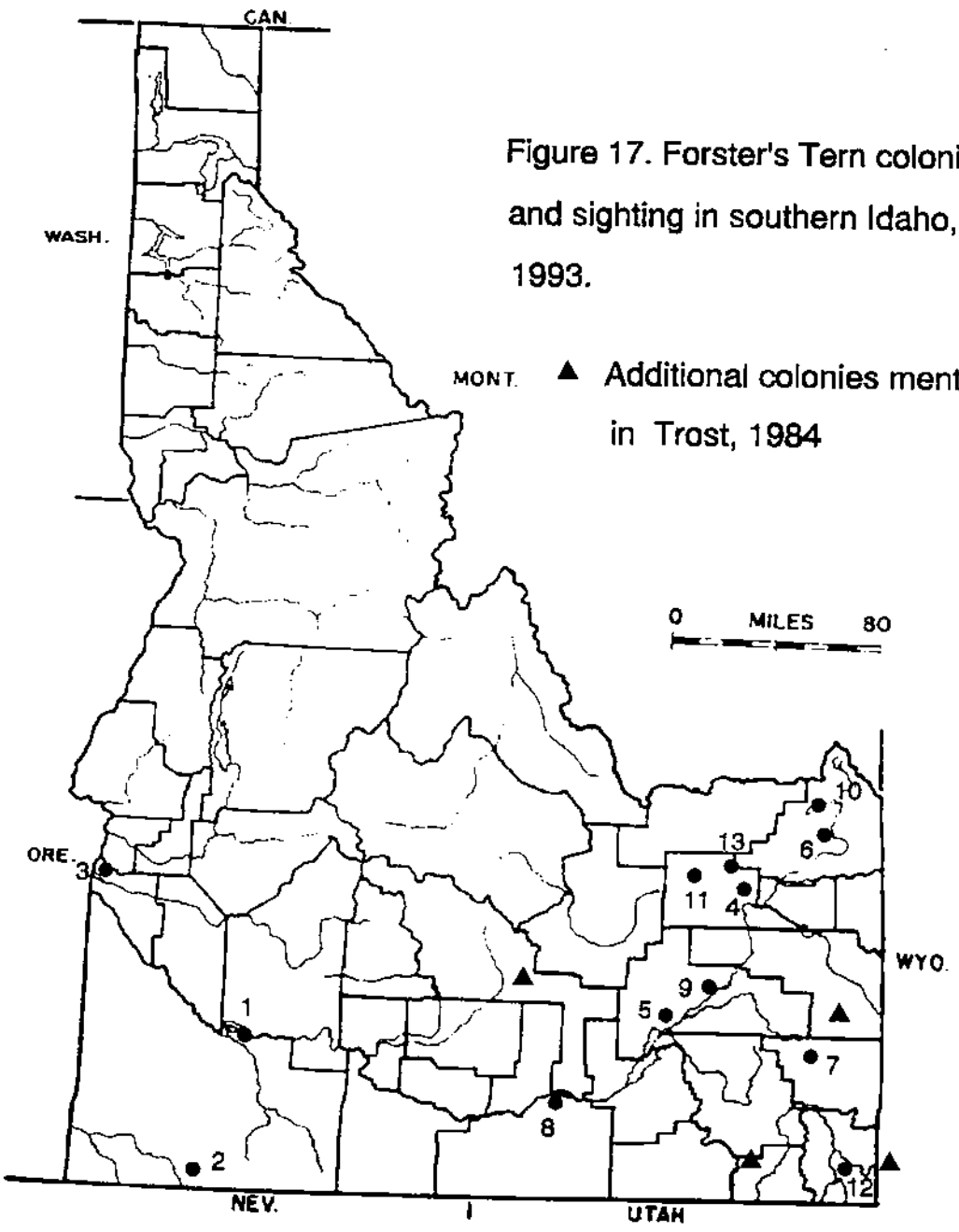

Figure 17. Forster's Tern colonies and sighting in southern Idaho, 1993.

▲ Additional colonies mentioned in Trost, 1984

Table 17. Nesting Locations and Sightings of Forster's Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	C. J. Strike Res.	52.50-115.45 (T6S,R6E,S5)	-	1	5-28	Foraging over the river below Hwy 51 bridge.	This Study
2	Duck Valley Indian Reservation	41.59-116.00 (T16S,R2E,S11)	-	10	5-28	Foraging on Mountain View Reservoir.	" "
2	" " "	" "	15-20	20+	6-29	Nesting in marshy area w. of the reservoir. Several nests with eggs.	" "
3	Fort Boise WMA	43.40-117.01 (T6N,R5W,S36)	-	3	5-30	Foraging over the river.	" "
4	Market Lake WMA	43.47-112.10 (T5N,R37E,S6)	-	3	6-7	Two over the main marsh, 1 over east marsh. Numvers seem down.	" "
4	" " "	" "	-	1	6-11	Over east marsh.	" "
4	" " "	" "	-	1	7-3	One feeding over the borrow pit s. of Roberts, by the freeway.	" "
4	" " "	" "	-	3	8-4	three adults over the east marsh.	" "
5	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	2	6-17	Over the Snake R. near McTucker Springs, adults.	" "
5	" " "	" "	-	2	7-2	Near River Road, McTucker Sp. There are several Common Terns here too, but more in open water.	" "
5	" " "	" "	-	1	7-11	Foraging over the Snake R. about 1 mile upstream from McTucker Spr.	" "
5	" " "	" "	-	3	7-19	All three adult Forster's, sitting on a mud bar at the mouth of the Snake R. on the reservoir.	" "
5	" " "	" " S29	-	3	7-25	Adults foraging near the silo.	" "
5	" " "	" " S36	-	4	7-27	Foraging over the Snake River between Tilden Bridge and the reservoir - no colonies.	" "
5	" " "	" " S33	-	5	8-12	Foraging adults at the edge near Aberdeen's Gull Island.	" "
6	Harriman State Park	42.40-111.30 (T14N,R43E,S27)	-	1	6-29	One foraging over Silver Lake, but none present on 7-16.	" "
7	Blackfoot Reservoir	42.48-111.38 (T6S,R41E,S11)	-	100+	6-19	Maybe from Gray's Lake NWR.	L. Hlavaty
7	" "	" " S12	-	3	7-4	At Craig Lake, s. end.	This Study

Table 17, cont. Nesting Locations and Sightings of Forster's Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
8	Minidoka NWR	42.40-113.20 (T9S,R26E,S26)	-	1	7-5	One tern was foraging at the Coldwater Cr. area on the Snake	This Study
9	Blackfoot Hwy Pond	43.10-112.25 (T3S,R35E,S33)	-	1	7-9	One Tern feeding over pond.	" "
10	Island Park Res.	44.25-111.35 (T13N,R42E,S36)	-	2	7-17	Foraging over the west end, no nest seen.	" "
10	" " "	" "	-	1	8-4	One tern flying over the marsh at the west end.	" "
11	Mud Lake WMA	43.53-112.25 (T7N,R37E,S33)	-	3	7-21	Adults sitting w/ Ring-bills on marsh.	" "
12	Bear Lake NWR	42.11-111.19 (T14S,R44E,S11)	-	120	7-8	In Mud & Rainbow Lakes areas, but nesting not observed.	R. Sjostrom
13	Camas NWR	43.54-112.16 (T7N,R36E,S30)	-	present	6-16	Not known to nest.	G. Deutcher
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	-	6-29	Present on refuge, but not known to breed.	J. Reynolds

Total Range in Forster's Tern Nests = 15-20

COMMON TERN
Sterna hirundo
STATUS: No current listing

Distribution and Movements
In the West, Common Terns breed in Canada and south into northern Montana, and locally in Wyoming. In Idaho, Common Terns have bred in the southeast portion of the state. They winter from southern California south along the western coast of Baja California and into Central and South America. Southward migration occurs from August to December, and spring migration from March to May.

Habitat and Nesting
Common Terns hunt in open water by diving into the water after small fishes of approximately 3-4 inches (7.5-10cm) in length. Other prey includes crustaceans and occasional small insects.

In Idaho, the Common Tern is found on larger reservoirs, whereas the Forster's Tern is more typical of marsh habitats. Breeding is usually on isolated islands, and sometimes on the tips of sandspits, in colonies of several hundreds or even thousands. The nest is a slight depression in the soil, which may be lined with grasses, seaweeds, or bits of seashell. Clutch size ranges from 1-3 eggs, but three is the most common number.

Survey Results
Common Terns are a peripheral species that became established in southeastern Idaho during the 1980's. Adults of this species were present all summer at the mouth of the Snake River at American Falls Reservoir, but we found no evidence of reproduction. It could be that this tern was initially responding to drought conditions of the last seven years, which might have resulted in shallower waters for feeding. Nesting islands might also have been more available during low water years. In any event, conditions seem to have changed this year.

It is interesting that we found no evidence of reproduction in either Common or Forster's Terns on the Snake River Plain. As with the Forster's Tern, this species should be monitored next summer to see if the lack of reproduction is only a one year event, or indicates more severe long-term problems.

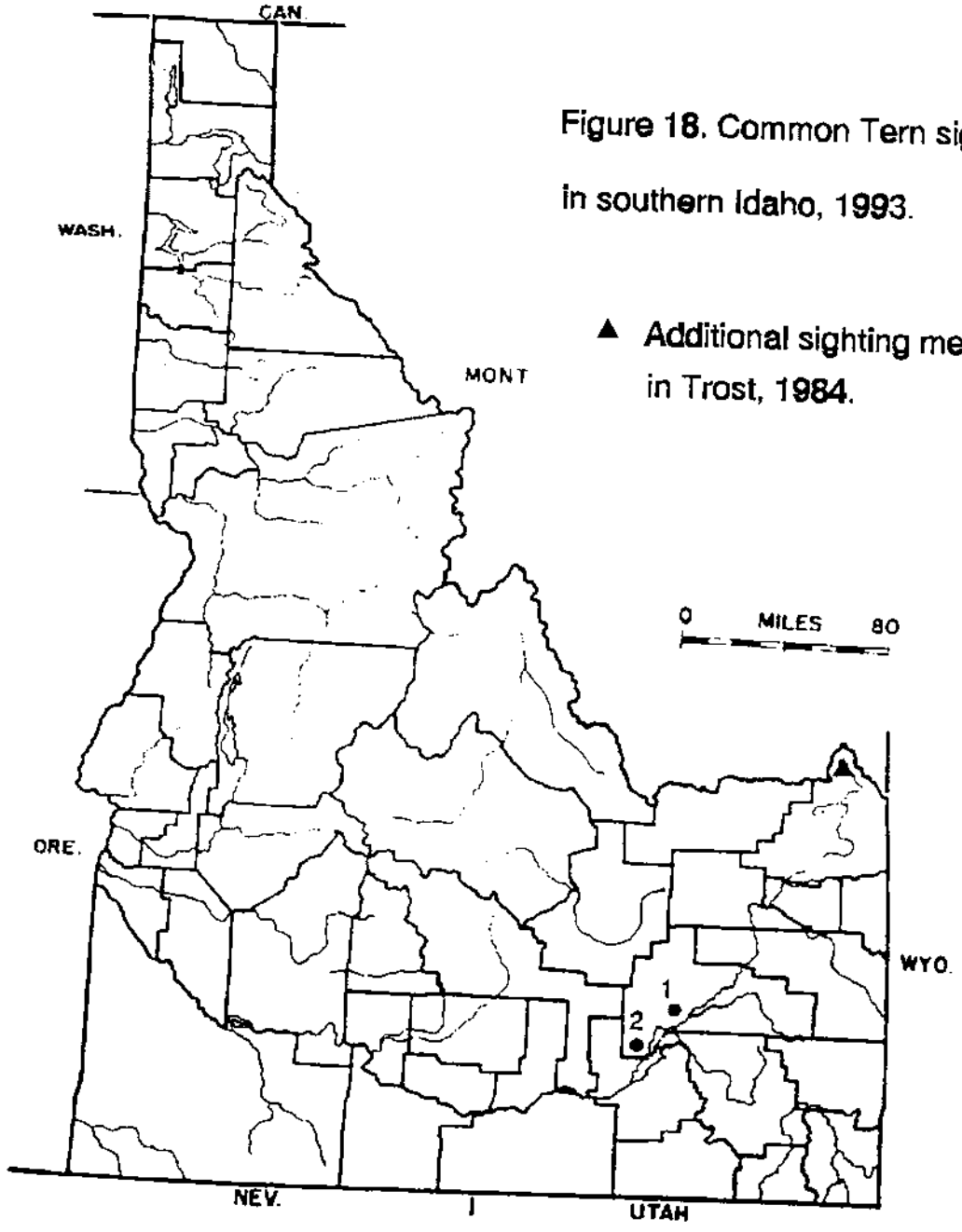

Figure 18. Common Tern sightings in southern Idaho, 1993.

▲ Additional sighting mentioned in Trost, 1984.

Table 18. Sightings of Common Terns in Idaho, 1993.

Map #	Location	Lat-Long. (TRS)	# Nests	# Birds	Date	Comments	Source
1	American Falls Res.	42.59-112.16 (T5S,R33E,S36)	-	8	6-17	Flying over reservoir at the mouth of the Snake River.	This Study
1	" " " " "	-	11	7-2	Over the mouth of the Snake River, one in winter plumage, but not a juvenile. Not nesting here this year, I don't think.	" "
1	" " " " "	-	8	7-19	Foraging at the mouth of the Snake River & the reservoir.	" "
1	" " " " "	-	2	7-27	At McTucker Springs area.	" "
1	" " " " "	-	14-29	8-12	A large group of terns were feeding off Danielson Cr., at least one was an Arctic Terns and 5 were Forster's. Many were Common Terns, though.	" "
2	" " "	42.50-112.40 (T6S,R31E,S29)	-	1	7-22	Foraging near the Silo, w/ an Arctic Tern.	" "
2	" " " " "	-	14	8-12	At Aberdeen Sportsman's Access, at Big Hole, there were at least 14 Commons, with several Arctics & 15 unidentified terns.	" "
-	Kootenai NWR	48.42-116.10 (T62N,R2E,S13)	-	-	6-29	Present on refuge, but not known to breed.	J. Reynolds

Total Number of Common Tern Nests - 0

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APPENDIX A

The questionnaire sent to refuge managers and other personnel is shown on the nest two pages. The following organizations and individuals provided us with returns, and we gratefully acknowledge their help:

BLM, Boise District (John Doremus and Mike Mathis)

BLM, Jarbridge R.A. (James Klott)

Bear Lake N.W.R. (Richard Sjostrom)

Camas N.W.R. (Gerry Deutscher)

Deer Flat N.W.R. (Wayne Stanley)

Idaho Dept. of Fish and Game, Region 3 (Andy Ogden)

Idaho Dept. of Fish and Game, Soda Springs Dist. (Larry Hlavaty)

Kootenai N.W.R. (Jimmie J. Reynolds)

Market Lake W.M.A. (Don Kemner)

Mud Lake W.M.A. (Don Kemner)

Craig Groves and Jeff Marks

In addition, we would like to thank all the various management personnel who assisted us as we did the surveys; we never found out most of your names, but all were extremely helpful. We would especially like to thank Wayne Stanley, Kevin Ryan, and other staff members of the Deer Flat N.W.R., and Walden Townsend of the Duck Valley Indian Reservation, who were particularly helpful.

Bob Robertson of Western Air Research was the pilot for the aerial survey. Maps were prepared by Wang Xiachong and Glenn Carlson.

NAME OF AREA REPORTED: _____

Date:

Reported by:

Name: _____
Address: _____
Phone: _____

SPECIES OF WATERBIRD	STATUS IN YOUR AREA			
	Present	Nesting	Est.# nests	Est total#
EARED GREBE				
CLARK'S GREBE				
WESTERN GREBE				
AM. WHITE PELICAN				
DOUBLE-CRESTED CORMORANT				
GREAT BLUE HERON				
BLACK-CROWNED NIGHT HERON				
SNOWY EGRET				
CATTLE EGRET				
GREAT EGRET				
WHITE-FACED IBIS				

(OVER)

SPECIES OF WATERBIRD	STATUS IN YOUR AREA			
	Present	Nesting	Est.# nests	Est total#
CALIFORNIA GULL				
RING-BILLED GULL				
FRANKLIN'S GULL				
CASPIAN TERN				
COMMON TERN				
FORSTER'S TERN				
BLACK TERN				

Please use the space below for any information on specific locations of these populations, and how any population estimates were made. Thank you.

U.S. Department of the Interior
Bureau of Land Management
Idaho State Office
3380 Americana Terrace
Boise, Idaho 83706

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